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EXPEDITION OF THE CALIFORNIA ACADEMY OF  
SCIENCES TO THE GALAPAGOS  
ISLANDS, 1905-1906

XIII

FIELD NOTES ON THE LAND BIRDS OF THE GALAPAGOS  
ISLANDS AND OF COCOS ISLAND, COSTA RICA

BY

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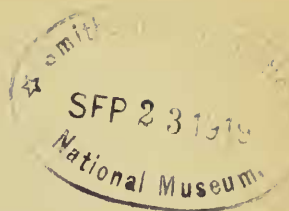
The present paper is a continuation of "The Birds of the Galapagos Islands, with Observations on the Birds of Clipperton and Cocos Islands (Columbiformes to Pelecaniformes)."<sup>1</sup>

The collection of land bird skins brought back by the Expedition numbers 5,916, exclusive of the Galapagos Dove. The writer lacks the time to study this large number of specimens and therefore deems it advisable to publish his field notes without further delay. In addition to the skins, considerable collections of eggs, nests, and birds and stomachs in alcohol were made. These also await investigation.

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<sup>1</sup> Proc. Calif. Acad. Sci., 4th ser., v. 2, pt. 1, pp. 1-132, pls. 1-7.

June 16, 1919



The land birds of Cocos Island, Costa Rica, and of the Galapagos Islands are treated in the present connection, with the exception of the Galapagos Dove already considered in the earlier paper. The sequence and nomenclature of species in both papers is that of Sharpe's "Hand-list of the Genera and Species of Birds."

As the species of the genera *Geospiza* and *Camarhynchus* demand a thorough revision with all available material at hand, the writer uses provisionally, with a few changes, the specific names as defined by Messrs. Rothschild and Hartert<sup>2</sup> and Messrs. Snodgrass and Heller.<sup>3</sup> Wherever the writer fails to recognize a species admitted by these authors, the rejected name is placed in a selected synonymy.

The localities listed for each species also include those mentioned by Messrs. Salvin,<sup>4</sup> Ridgway,<sup>5</sup> Rothschild and Hartert, and Snodgrass and Heller.

For a full description of the botanical regions or zones (dry or arid, moist or humid, and grassy, in order from seashore to mountain top) mentioned in this paper, the reader should refer to Mr. Alban Stewart's paper "A Botanical Survey of the Galapagos Islands."<sup>6</sup>

### 1. *Buteo galapagensis*: GALAPAGOS HAWK

Abingdon, Albemarle, Barrington, Bindloe, Chatham, Daphne, Duncan, Gardner-near-Hood, Hood, and Indefatigable islands, islet off northeast James, islets east of Jervis, James, Jervis, Narborough, and Seymour islands.

Indefatigable was the center of abundance of the Galapagos Hawk, which was not observed at all on Charles, Culpepper, Tower, and Wenman. It lived in the arid or dry, and in the humid or moist, regions and along the seashore, being commonest in the dry region. It appeared not to fly far from land, but evidently left the home island at times as attested

<sup>2</sup> A Review of the Ornithology of the Galapagos Islands, Nov. Zool., v. 6, pp. 86-205, pls. 5, 6; Further Notes on the Fauna of the Galapagos Islands, Nov. Zool., v. 9, pp. 373-418, pl. 10.

<sup>3</sup> Papers from the Hopkins-Stanford Galapagos Expedition, 1898-1899. XVI. Birds. Proc. Wash. Acad. Sci., v. 5, pp. 231-372.

<sup>4</sup> On the Avifauna of the Galapagos Archipelago, Trans. Z. S., v. 9, pp. 447-510, pls. 84-89.

<sup>5</sup> Birds of the Galapagos Archipelago, Proc. U. S. N. M., v. 19, pp. 459-670, pls. 56, 57.

<sup>6</sup> Proc. Calif. Acad. Sci., 4th ser., v. 1, p. 206.

by its presence on the islets off James and Jervis. We also saw this species flying back and forth between Hood and the neighboring Gardner. Occasionally birds came out from shore and flew around the schooner when anchored.

This species has a light and a dark phase. Individuals in the two phases were about equal in numbers, although birds in the light phase were not seen in as many localities as birds in the dark phase. Intermediates were not uncommon. Birds in the light phase were commonest at Academy Bay, Indefatigable, which was a great rendezvous for hawks.

The nests were bulky affairs of sticks usually built in a low tree or on a rock in an easily accessible position. On April 8, at Tagus Cove, Albemarle, I photographed a nest belonging to two birds in the dark phase. It was built in a *Bursera* tree, partly fallen over, growing on a steep hillside. The top of the nest was about eight feet from the ground. The nest structure was two feet in height and made of sticks. The depression at the top was shallow and lined with grass pulled from the ground in bunches. It contained two fresh eggs. While Mr. Beck and I were examining and photographing the nest, the birds stayed close by, calling continually. After making several swoops, one of the pair fastened its talons in my hat, while I was in the tree with the camera. It carried the hat a short distance and dropped it.

While anchored at northwestern Indefatigable, July 21 to 23, three nests were examined. One, unoccupied, was built in the usual style about 14 feet above the ground in a *Bursera* tree. Another, unoccupied, was about 10 feet above the ground in a tree growing on a hillside. It was built of sticks and showed signs of use. A hawk made several threatening swoops at me while I was examining it.

The third nest was composed of a mass of sticks resting partly on a heap of lava and partly on a bush growing beside the heap. It was situated on a plain some distance from any rise of ground. The top of the nest was about 12 feet above the ground. The part resting on the lava was about four and one-half feet in height, the part on the bush only one and one-half feet. The owners were much excited, swooping at us frequently and calling constantly. There was a third old bird with them on the two occasions we visited the nest. It was not

as zealous, however, in the defense as were the two owners. They were fearless, allowing us to come very close to them. The nest contained two young with downy heads and fairly well-feathered bodies. They were in the nest and were not observed to sit up.

An adult, taken on Hood on July 2, had large sexual organs.

Like most of the native birds, the hawks lacked the fear of man. They were very inquisitive, alighting close to and even following a person. At times, however, dusky-plumaged birds appeared a bit wary. When we were encamped three or four hawks, sometimes more, frequently stayed around camp all day. On northwestern Indefatigable, while collecting along the coast, several followed me, alighting around me, often within four or five feet, every time I stopped.

Twice we saw Galapagos Hawks in company with Man-o'-war Birds, circling high in the air. They were usually seen, though, only with birds of their own kind. Frequently at sundown there would be three or four roosting in the trees about our camp. They also roosted in cactuses, on the rocks along the sea coast, and on telephone poles.

The hawks killed were in good health and were frequently very fat. They put up a game fight when wounded, getting on the back if hard pressed and bringing the talons into play.

In food habits, Galapagos Hawks fill the offices of birds of prey and of scavengers, and seem to draw the line at no animal matter dead or alive. Any of their own species, killed or seriously wounded, they fell on with avidity, disposing of them in short order. On one occasion we killed two and left them on a beach; in a short time 17 of their fellows congregated and devoured them. A list of the animal remains which we found in specimens of this hawk, or which we saw them eating, gives some idea of the variety of their diet: Crabs, centipedes, grasshoppers, finches, lizards, fat torn from seal and pig skins staked out to dry, tortoise, iguana, and goat remains, young Swallow-tailed Gulls, and the putrid remains of an adult Blue-footed Booby. We found the carcass of the booby in the nest of a pair of hawks on South Seymour. Their craws were crammed with its rotten flesh.



While sitting under a tree one day on southern Indefatigable, I noted a seven-inch centipede close by on the ground. A hawk, standing a few feet above me in the tree, also saw it, hopped down to the ground beside it, and promptly seized it in his talons. He then stood still for a moment, shifted the centipede from one foot to the other, pulled at it two or three times with his bill, and finally flew away with it in his talons.

## 2. *Pandion haliaëtus*: OSPREY

Albemarle and Chatham islands.

The first Osprey seen was circling high in the air with a number of Man-o'-war Birds near Villamil, Albemarle, on November 1. The next day a male was taken. On August 25 another was seen at Villamil. At Sappho Cove, Chatham, on February 14, I saw one soaring high above the sea.

When a few miles off Cocos Island, Costa Rica, on September 3, an Osprey was seen. On each of the two following days one was observed on the island, and on the 7th Mr. Beck shot a male.

## 3. *Asio galapagensis*: GALAPAGOS SHORT-EARED OWL

Abingdon, Albemarle, Barrington, Bindloe, Champion, Charles, Chatham, Culpepper, Duncan, Gardner-near-Charles, Hood, Indefatigable, James, Seymour, and Tower islands.

We saw short-eared owls on the above islands, except Bindloe, Culpepper, and James. They were most numerous on Tower, where ten were seen during one day. Usually they were noted singly.

In most cases they were observed in the dry region and near the beaches. At Iguana Cove, Albemarle, where the moist region extends practically to the sea coast, a number were seen at night in the trees. On southern Indefatigable, the center of abundance of the barn owl, only one was taken, while on northern Indefatigable three were taken, although they were hunted more in the former locality.

Often they frequented rock piles and sides of craters, and on Tower some were observed in trees in broad daylight.

In daytime they could be approached closely enough to be shot with an auxiliary cartridge, while twice birds were killed with stones. At night they came to our camp fires, and one evening at Villamil, Albemarle, one alighted on the vessel.

The stomach of a specimen, taken on Hood on June 26, contained the remains of a centipede, a Sooty Ground Finch, and grasshoppers.

Certain individuals, taken on Hood in September and October, had long parasitic worms between the skull and the skin covering it.

#### 4. *Strix punctatissima*: GALAPAGOS BARN OWL

Abingdon, Albemarle, Indefatigable, James, Narborough, and Seymour islands.

Although its chief stronghold was southern Indefatigable, where five were taken in one night, this barn owl was also observed and taken by us on Albemarle and Narborough.

Mr. Beck reported them in the elevated, humid, fertile portions of southern Narborough in early April. A female, with slightly enlarged ovaries, was killed with a stick on the night of April 6 at 1500 feet elevation on Tagus Cove Mountain, Albemarle. At Santo Tomas (elevation 1000 feet), in the moist region of southeastern Albemarle, one flew into the house of the major-domo of the ranch on a foggy night in August.

In the moist region of southern Indefatigable on November 13, one was taken about midnight at 700 feet elevation. It alighted on a branch close above us, although we had no camp fire. A few nights before Mr. Beck obtained two in the dry region. On the night of January 17, two were seen at our camp at 350 feet elevation. While spending the night of July 11 in the region just mentioned, I took three females at camp. Each one alighted on branches six or seven feet above the fire. There they sat until shot, turning their heads from side to side, and staring down with large wondering eyes at me and the fire.

The only vocal sound I heard from this species was a hiss emitted by a wounded bird. Grasshoppers were found in their stomachs.

### 5. *Coccyzus ferrugineus*: COCOS ISLAND CUCKOO

The extremely shy cuckoo of Cocos Island, Costa Rica, proved to be the rarest of the indigenous birds of that island. We saw it only at Wafer Bay, where six individuals were observed during the first half of September, 1905. The Academy's collection contains four of these. They were observed in the clumps of banana trees as well as in the virgin forests. Twice they were heard calling. An examination of the stomach of one showed the remains of what appeared to be crickets.

### 6. *Coccyzus melanocoryphus*: AZARA'S CUCKOO

Albemarle, Barrington, Charles, Chatham, Duncan, and Indefatigable islands.

This cuckoo was common on Charles and Chatham, and less so on Albemarle. On Indefatigable it was heard frequently and twice seen, but not captured. On Duncan, also, it was observed and heard twice during December. Mr. Nelson shot one on Barrington on July 10.

Cuckoos occurred in the dry as well as the damper portions of the islands and were occasionally seen in the mangroves on the coast. On Chatham they were noted in the hedges of sisal hemp bordering the sugar fields in the moist region. They were also common in the native Galapagos vegetation from there down to the coast. At Black Beach Roads, Charles, the species was noticed most commonly on the westerly slope of the island, only one or two individuals being observed in the interior, which is overrun by lemon and orange trees introduced by former settlers. On Indefatigable, in the vicinity of Academy Bay, it was heard in the dry region up to 350 feet elevation, and two were seen near the beach. On Duncan and Barrington it occurred in the dry region. On Albemarle the species was seen in both the moist and dry regions and also in the mangroves of the coast, being observed on all of the mountains except Cape Berkeley, which we did not visit. It was noted above 1500 feet elevation on the west side of Tagus Cove Mountain.

This species was not gregarious, seldom more than one individual being seen at a time. Once in a while they were

observed flying, usually only from bush to bush. They were very shy and could not be approached closely, the majority of specimens being shot with 12-gauge shells or with a shot pistol, and not with an auxiliary barrel. When approached a cuckoo usually flew a short distance into the brush and then stopped to see if it was being followed; if so, it would go on a little further and then stop again. Sometimes, however, if the collector remained motionless, the bird became inquisitive and approached close enough to be shot.

On the ground cuckoos were swift runners. Their chief food seemed to be grasshoppers varied with occasional katydids.

The call of this cuckoo was similar to that of the Cocos Island Cuckoo, and was heard oftener than the birds themselves were seen. In late May and early June on Charles and in early June on Chatham, they were not heard to call.

Nests were not infrequent, although those found were usually old or deserted. They were almost invariably built several feet above the ground in bushes or small trees, often in hard wood bushes (*Psidium galapageium*). They were commonest on Chatham in the native vegetation.

On January 27 at Wreck Bay, Chatham, Mr. Beck obtained three eggs with incubation just begun. The nest from which they were taken was about six inches across and composed of little twigs and orchilla moss. It was placed in the fork of a small tree 12 feet above the ground. The parent stayed on the nest until approached closely, and then remained in the tree until shot. In the same locality and on the same day, Mr. Hunter found a nest with one fresh egg. When the nest was examined two days later, the egg was broken and the bird nowhere to be seen. The nest was eight feet above the ground in a bush of *Psidium galapageium*. It was very shallow and built of twigs loosely put together, and lined with moss.

At 1000 feet elevation on the west side of Tagus Cove Mountain, a nest containing three eggs was found by Mr. Beck on March 28 in a bush growing on a steep canyon side. It was composed of dry twigs with a few grass stems for lining.

On January 27 a female was shot near Wreck Bay and an egg ready to be laid was taken from her oviduct. A specimen taken at Banks Bay, Albemarle, on April 15, had

small sexual organs. Specimens taken on Charles on May 14 and 15, also had their reproductive organs much reduced in size.

On August 10 and 11, high up on the east side of Cowley Mountain, Albemarle, the remains of cuckoos were found in two places. They had perhaps met violent deaths owing to the presence of cats. At Wreck Bay on July 7, I shot a cuckoo which did not have a vestige of a tail—perhaps also the work of a cat.

The bill of the bird in life is black and the feet pale blue.

#### 7. *Pyrocephalus nanus*: GOULD'S VERMILION FLYCATCHER

Abingdon, Albemarle, Barrington, Bindloe, Charles, Duncan, Indefatigable, James, Jervis, Narborough, Seymour, and Wenman islands.

The Gould's Vermilion Flycatcher was found along the seashore, in the dry region, in the moist region, and in the grassy region of the higher mountains. Native and introduced vegetation was frequented alike.

It was common on Albemarle, Charles, Indefatigable, and James. Mr. Hunter shot a lone individual on Wenman on September 24, demonstrating that this species also leaves its home island. None were seen on Barrington or Narborough, although reported by other expeditions.

Their methods of hunting are like those of the Galapagos Flycatcher. They haunt the bushes and trees in search of insects. On Tagus Cove Mountain I saw a young one in striped plumage catch an insect on the wing. Another time I saw an immature male devouring a small butterfly while sitting on a branch. In one case one took insects from Mr. Williams' hand, and as a rule they were very tame, approaching within a foot or two of one, and often being killed with a short stick. One was noted eating a small scorpion during our stay on Cowley Mountain. On southeast Albemarle they were common in a large slaughter field above Santo Tomas. There they were seen catching insects on the putrid remains of numerous cattle which had been slaughtered from time to time for their hides. At Academy Bay, Indefatigable, these flycatchers were seen at various times standing



on the muddy bed of a saline lagoon making rushes at passing insects.

Several times I have noted males flying high in the air in a wavy style, often dropping several feet and then going up again. This was noticed on southern Indefatigable in November and in January, and on Abingdon in September. Whether these were mating antics, or whether the birds were hawking for insects, I do not know. At Black Beach Roads, Charles, in October, they were seen chasing each other through the woods.

The condition of the reproductive organs was noted as follows:

November 3; Villamil, Albemarle; one in intermediate plumage had large testes.

December 5; Duncan; two with enlarged testes.

December 11; Duncan; enlarged testes.

May 14, 15; Charles; small reproductive organs.

On February 28, in the interior of Charles, I took two nests each containing three unfeathered young, another containing two, and another containing one. On March 2, in the same locality, one nest was found containing three well-grown young and several containing two each. On the same day, Mr. Beck found a nest 12 feet above the ground in a bush of *Zanthoxylum pterota*. The nest was a small, neat, compact cup of moss placed at the forking of a limb, and contained one fresh egg. The nest of this species, to all appearances, is the same as that of the Pygmy Vermilion Flycatcher of Chatham.

## 8. *Pyrocephalus dubius*: PYGMY VERMILION FLYCATCHER

### Chatham Island.

The habits of this species are like those of the Gould's Vermilion Flycatcher. It was not common near the beach at Wreck Bay, but about a mile up the road it became quite common, and was found in all of the wooded region below El Progreso. On February 22, one or two individuals were seen in the lemon trees planted in the upper grassy pasture land above El Progreso. Mr. Beck took a number in the elevated moist region, high on the mountain above Basso Point, on



the north coast of the island. Mr. Hunter and I saw none that day below in the dry region.

The food habits of this species were identical with those of the Gould's Vermilion Flycatcher. Occasionally an insect too large to swallow was taken. Then the bird would hold it firmly in its bill and proceed to break it against a branch.

These flycatchers were very tame, despite the fact that Chatham had been occupied by man for many years. Their extreme inquisitiveness and unwariness allowed us to kill many of them with sticks.

In the latter part of January, I noted occasional individuals flying up and down in the air in a wavy style just as the Gould's Vermilion Flycatcher was observed to do. It was a common thing to see them chasing one another through the forest. Two couples were seen copulating in January. Birds taken as early as October 17, however, had enlarged sexual organs.

Like other Galapagos land birds this species nests in the wet season when the vegetation of the arid region is green. The following is a list of the nests we found. They were indistinguishable from those of the Gould's Vermilion Flycatcher.

January 26; Wreck Bay region. An empty nest was found 14 feet above the ground in a tree of *Zanthoxylum pterota*. It was small, open, and built of moss. The owners were very much disturbed, keeping quite close to me while I was in the tree, jumping from limb to limb, and uttering occasional cries.

January 27; Wreck Bay region. Mr. Beck took a nest similar to the above, but containing two incubated eggs.

January 29; Wreck Bay region. I found a female sitting on a nest containing two fresh eggs. The nest was about 20 feet above the ground in a *Bursera* tree, being built at the forking of a branch. It was quite shallow and made of grass, moss, and cotton, and lined with moss. The bird allowed me to climb within a few feet of her without leaving the nest. The nest investigated on the 26th was again examined and was found to be apparently deserted.

The next nest was taken by Mr. Beck on February 8, in the moist region on the mountain above Basso Point. It was

likewise at the forking of the limb of a tree, about 20 feet from the ground, and was composed principally of moss taken from the tree, two or three species being used to form the delicate cup. The female remained on the nest until frightened by the shaking of the limb.

Close beside the wagon road connecting the wharf at Wreck Bay with the village of El Progreso, another nest was found on February 21. It was about nine feet from the ground in a bare bush. The female stayed on the nest, guarding zealously her one fresh egg, until I was very close. An egg, incubated about six days, was taken on February 23 from a nest in the Wreck Bay region. As usual, the nest was open, small, compact, shallow and like that of the Gould's Vermilion Flycatcher. It was built of moss, small twigs, and wild cotton. It was nine feet above the ground in a tree close beside the wagon road. On the same day, in the same locality, another nest containing two fresh eggs was found. It was built of small twigs and moss, and placed in the fork of a limb of a tree 30 feet from the ground. The female remained on the nest while the limb was being cut off and hauled in, so that the nest could be reached.

Birds in plumage intermediate between red and buff were rare.

#### 9. *Nesotriccus ridgwayi*: RIDGWAY'S FLYCATCHER

This sombre-colored little bird haunts the dense rain forests of Cocos Island, Costa Rica. It is met with singly and in pairs as one proceeds along the overgrown trails or works his way up one of the numerous streams of that island. Bating the Cocos Island Cuckoo, this species is the least numerous of the four species of land birds known from that island. During our stay at Cocos in September, 1905, we usually saw several whenever we journeyed into the forests.

#### 10. *Eribates magnirostris*: GALAPAGOS FLYCATCHER

Abingdon, Albermarle, Barrington, Bindloe, Brattle, Charles, Chatham, Daphne, Duncan, Hood, Indefatigable islands, islet off northeast James, James, Jervis, Narborough, Tower, and Wenman islands.

This inquisitive and unsophisticated little flycatcher has been observed on all of the islands just named, and was seen by us on all except Jervis and Narborough. It was quite a common species, seldom more than a couple of individuals being seen together, however. Only one was seen on Daphne, one on the islet off northeast James, and one on Tower. Mr. Beck saw three on Wenman on September 24. At the same time other species also known previously only from islands to the southward were seen and taken.

Galapagos Flycatchers were observed from the ocean beach, where they were seen among the rocks below the high tide line, to the tops of the mountains, living under quite a variety of conditions. Everywhere they were observed in the arid belt, the usual vegetation of which is spiny bushes, cactus, *Bursera* trees, and thorn trees (*Prosopis dulcis*). They were occasionally seen about the saline coastal lagoons. In the transition region between the arid and humid belts, in which the cacti disappear and the ferns appear, they were also present.

In the central part of Charles, which is overrun with lemon and orange trees and is blessed with two or three springs, quite a number were seen. Only a few were noted in the very humid belt on the south side of Indefatigable, where the vegetation is so thick and rank that the ground is hidden from view and one has to cut his way with a machete. In the upper grassy region of southeastern Albemarle at an altitude of about 3200 feet, where bushes and trees are scarce, some were seen. In the crater of the same mountain several were noted; the vegetation there was that of the arid region of the coast, and not that of the outer slopes of the mountain at the same altitude (about 2800 feet). At Iguana Cove, Albemarle, they were common only above 300 feet elevation. At a large tree at 1500 feet elevation on the west side of Tagus Cove Mountain, Albemarle, quite a number were observed. On Abingdon two were noted in the humid belt about 500 feet below the dense and almost impenetrable growth of ferns, which crowns its summit. On James they were observed on the main peak (altitude 2850 feet), which is covered with tall grass (*Paspalum conjugatum*) and stunted trees and bushes, as well as on the scantily clothed black lava lying be-

tween the principal mountains and the Sugar Loaf hill on the southwestern portion of the island.

They frequented the bushes and trees and were seldom seen on the ground. Their movements were quite rapid, although often not quick enough to escape the stick in the hand of the collector. The bird often sat on a limb until approached within a foot or two, when it would dart off to an adjacent branch. At each resting place it would look about carefully for insects, turning its head in all directions. Occasionally they were seen in company with vermilion flycatchers, and once on James they were observed with four or five species of ground and tree finches feeding in a large tree with red flowers (*Erythrina velutina*). On southeastern Albemarle I observed a pair catching moths for their young. One held a moth in its bill for five minutes while examining me, and then finally took it to the young, which were only partially fledged. At Villamil, Albemarle, one was noticed hunting insects in a wood pile near the chief house of the village.

During the mating season they were heard to sing a little. In early January, on James, I saw two chasing each other, and heard one singing. A few days later, on southern Indefatigable, I again heard the song. At Iguana Cove, Albemarle, on March 19 and 20, two, three, and four were often seen pursuing each other, and singing constantly. At Academy Bay, Indefatigable, on July 11 and 12, two couples were observed pursuing each other and calling at the same time. In the same locality one was heard calling on the 15th and another on the 16th.

The condition of the reproductive organs was noted as follows:

December 11; Duncan; considerable enlargement.  
January 13; Academy Bay, Indefatigable; large.  
February 8; Basso Pt., Chatham; large.  
May 23; Black Beach Roads, Charles; small.

In latter May most of the adult land birds on Charles were moulting. Two bob-tailed Galapagos Flycatchers with new tail feathers just appearing were seen.

The following is an account of the nests, eggs, and young that were found:

On January 26, in the vicinity of Wreck Bay, Chatham, Mr. Hunter found a nest with eggs in a rotten stump. In the interior of Charles, on March 2, Mr. King found a nest in the trunk of a very old, cleft orange tree, the nest being about four feet above the ground. It was six inches in length, and of loose construction. It was built of twigs, roots, primaries of small land birds, and the hair of large animals such as pigs and donkeys. The lining consisted of hair. The depth of the nest was about an inch. The three young birds contained in this nest were just beginning to get feathers. The parents made practically no disturbance while the nest was being examined, but merely sat above us on a limb and watched our movements. Mr. King found two other empty nests of this species in positions similar to the above in a tropical plum tree on the same day.

The next nest I found while on a horseback trip on south-east Albemarle on March 7 and 8. The nest was in the lower part of the moist region. It was placed in a thorny tree (*Zanthoxylum pterota*) 15 feet above the ground, and was round and domed just like the nest of a ground finch, which it perhaps may have been at one time. It differed totally in its construction from the flycatcher nest described above, being quite spherical and compactly built. It was made of grass and green and brown moss, with a lining of hair. The nest was discovered by observing the old bird go to it. It contained three recently hatched young and one egg about ready to hatch. This egg had two half shells of other eggs adhering to one end of it. The egg is of cream color with brown streaks all over it, particularly at the large end. The parents made no disturbance save a little clicking noise when I tore the nest down.

On March 12, at a mangrove swamp in an inlet about 10 miles west of Villamil, Albemarle, another nest was found. This time it was placed in a cleft in a large straight tree (*Avicennia officinalis*) growing on the seaward side of the swamp, which contained some fresh water ponds. The nest was about 20 feet from the ground, and the entrance, which was nearly horizontal, was too small for me to insert my hand. The nest contained partially fledged youngsters, which were about six inches from the mouth of the hole. One of



the parents had its tail worn half off, apparently from passing in and out of the hole. They were both greatly disturbed, flying about me all the time.

While on a trip above 2000 feet elevation on the west side of Tagus Cove Mountain, Albemarle, on March 26 and 27, still another nest was found. It was placed between two broad cactus (*Opuntia*) leaves about seven feet from the ground, and for all the world looked to be the old nest of a ground finch, resembling it in most ways, being domed and made of grass and lichen, and lined with grass. The lichen was on the top of the nest. To the old lining of grass were added a few primaries and tail feathers of the Galapagos Flycatcher. It seems to be a fairly regular practice of this species to put wing and tail feathers of small birds in its nests. The egg, which was addled, was of the usual coloration. The actions of two adult flycatchers led me to believe, in the first place, that it was their nest. They made some objection when I tore the nest down, fluttering close to my hand in mute protest.

These little birds are remarkably tame and inquisitive, and, even on the islands occupied by man, they do not seem to have learned to be cautious. They were easily dispatched with a stick or even the barrel of one's shot-pistol. Once or twice on Chatham I have had them attempt to alight on the barrel of my gun while I was carrying it. They will often sit on a branch within a foot or two of a person, until some quick movement of the hand will cause them to fly swiftly to a limb close by with crest erected in alarm. One day I saw one pursued by a Sturdy Ground Finch, whose nest it approached too closely.

At Villamil, Albemarle, in March, a specimen was obtained with two featherless swellings or tumors at the base of the rami of the lower mandible. Another individual with similar swellings was seen at Iguana Cove, Albemarle, a little later in the month. This disease also affects the feet of many of the species of land birds. It is probably similar to the disease described by Mr. Henshaw as afflicting Hawaiian birds.<sup>7</sup>

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<sup>7</sup> Birds of the Hawaiian Islands, pp. 20, 21.



**11. *Hirundo erythrogaster*: AMERICAN BARN SWALLOW**

Charles, Chatham, and Hood islands.

We met with this swallow only at Black Beach Roads, Charles, where several were noted flying about the shore on October 11 and 12.

At Cocos Island, Costa Rica, it proved to be more numerous, for on the 5th of September I saw some 20 of them flying about the top of a hill above Chatham Bay. On September 2 Mr. Beck captured one at sea about 40 miles south of the island during a calm.

**12. *Progne concolor*: GALAPAGOS MARTIN**

Albemarle, Barrington, Charles, Chatham, Daphne, Duncan, Eden, Indefatigable, James, and Seymour islands.

We did not meet with this species on either Duncan or Barrington, although it has been reported by other observers. It seemed to be commonest on Albemarle, but was not particularly abundant anywhere.

They were observed in every region: the arid, the forested humid, the bare mountain tops, and also about the seashore and saline coastal lagoons.

On Charles several were met with on October 7, on the main peak above 1500 feet in the bald, shrubless and treeless region. Two days later Mr. Hunter took three in the interior. On our visit to Black Beach Roads, Charles, in latter May and early June, individuals were observed several times low down in the arid region, in the forested humid interior, and on the bald mountain top. One, which was noted flying over the tree tops in the interior basin of the island and which was taken May 24, had slightly enlarged reproductive organs.

The first specimen from Chatham was taken in the Wreck Bay region by Mr. Beck, October 17. On February 12 I noted several around the topmost pinnacle of Finger Point, a high and very precipitous promontory on the north central coast of the island. On February 22, a few were seen in the upper pasture country above the village of El Progreso.

Several were seen in the humid forested country on the south slope of Indefatigable, above Academy Bay, about the middle of November. While on a four days' trip inland from

Academy Bay, January 15 to 18, one was seen at about 900 feet elevation.

Mr. Beck obtained two on the south end of South Seymour on November 23.

On December 22, a few were seen near the beach at James Bay, James. One was seen August 9, in the same vicinity.

The Galapagos Martin was fairly common about Villamil, on the southeast coast of Albemarle. On November 1, 2, and 3, they were quite a noticeable feature of the village, skimming low over the ground and houses. On March 7 and 8, three or four were observed about the village of Santo Tomas, 12 miles inland from Villamil. On August 22 and 23, they were abundant over the salt lagoons in the vicinity of Villamil; all were on the wing and twittering a good deal. The following day I saw several on a dead tree on the shore of the largest lagoon. One or two were noted at the village on September 3. August 27 to 30, they were noted from the seashore to the top of the mountain, which is 3200 feet high, occurring in the arid, forested humid, and grassy humid belts. A short way above the town of Santo Tomas was a large slaughter field, which was a great resort for martins. There were a good many martins noted catching insects every time we went by on the road.

On Iguana Cove Mountain, Albemarle, they were quite common on March 19 and 20, above 400 feet, where insects abounded. I saw one with a butterfly in its mouth being pursued by two others. They were twittering considerably.

On August 10 and 11 several were seen flying at about 2000 feet elevation on the east side of Cowley Mountain, Albemarle.

Tagus Cove, Albemarle, however, was the true center of abundance of this bird. There it was observed commonly at a fresh water hole at the seashore, at 2500 feet elevation and below on the mountain, and also in the arid country a short distance inland from the ocean. On March 24, they were found nesting in holes in the cliffs over the ocean a short distance south of Tagus Cove. Mr. Beck took two nests with eggs, one with two, the other with three. The eggs were white. The nest containing the three eggs, which were fresh, was a shallow, though neat, affair of grass stems lined with

a few feathers of the Blue-footed Booby. It was placed in a small hole in the tufa cliff some 20 feet above the ocean. Mr. Beck stated that he took an egg from the same hole five years before, March 31, 1901. The two eggs contained in the second nest were incubated five days. The female was on the nest, which was of grass stems and small twigs, lined with feathers. It was in a small crack in the face of the tufa cliff, also about 20 feet above the ocean.

On the morning of March 24, at Tagus Cove, several martins were noted on a dead tree at the top of a bluff over the ocean. They were seen quite frequently sitting on ledges and at the openings of their nests in the cliffs, both singly and in pairs. I saw one enter its nest with a medium-sized yellow butterfly in its mouth. The sexual organs of birds taken in March and April were large. On April 5, they were common as usual along the cliffs. I saw one make a dozen or so unsuccessful attempts to catch a yellow butterfly which was crossing the cove. On April 9, I noted one chasing a sphinx moth over Tagus Cove; the moth finally dropped into the water and the bird left it.

On May 18, one was seen 20 miles south of Indefatigable. This was the only time the species was noted at sea.

### 13. *Nesomimus trifasciatus*: THREE-BANDED MOCKINGBIRD

Champion, Charles (extinct), and Gardner-near-Charles islands.

A number were taken on Gardner-near-Charles, October 3. On the same day we visited Champion, which lies close to Charles, and there a few were found around the tree cacti (*Opuntia*).

On February 26, I visited Champion again, but saw, however, only 10 or 12 birds, in somewhat worn plumage. One or two were in song, the music being different from that of the other species of *Nesomimus*. One young bird in spotted plumage was taken.

Nests were common, many being built like the one described below, others with an abundance of twigs. Most of them were old, but a few were fresh. A nest or two was found in nearly every good-sized cactus tree.

I took a nest with two fresh eggs. It was resting on the top of a broad cactus limb about nine feet above the ground. The nest was of the usual shallow construction which characterizes the nests of all of the species of this genus. It was built chiefly of grass and cactus fibre, with a few twigs on the outside. The bird did not leave the nest until I pulled a cactus limb away right beside her. She then left without a sound, and when I returned to the ground, she went back and looked into the nest without making any noise.

I think that two more days of hunting on Champion would have made the species extinct there.

#### 14. *Nesomimus macdonaldi*: HOOD ISLAND MOCKINGBIRD

Gardner-near-Hood and Hood islands.

This mockingbird is the largest species of the genus and is found commonly on the two above-mentioned islands. As the islands are low, this species is confined to the arid region.

Like the other mockingbirds, these were at home either on the ground or in the trees and bushes. They were good flyers as mockers go, and were excellent runners, often following a person along the sea beaches.

Their food is very diversified; in fact they seem willing to eat almost anything. They feed among the rocks at low tide, on the beaches, and inland. One day several were noted at different times digging vigorously with their beaks into the wet sand at low tide. Seventeen were caught one day in June under an ordinary box propped up with a stick. It was baited with dead crabs, bread, and a breakfast food called "Grape Nuts." Many birds were wary and would not go under, despite the tempting morsals. On one occasion I saw a mocker picking the eyelid of a pelican which had just been killed. On July 2, mockers devoured a young albatross in an egg which had been picked and from which we had driven the parent. Morsels of bread and meat from our lunches were always appreciated. No doubt insects form a considerable portion of their diet.

They were common about the water bird colonies on the south and east sides of Hood. On June 25 I noted them as common among the nesting albatrosses, who paid no atten-

tion to them, even though the mockers undoubtedly break eggs when the opportunity offers. It was a rainy day and the mockers presented a most bedraggled appearance.

On Hood on September 24, they were noted as very quarrelsome, and as uttering a harsh note at that time. A short song was also noted. On September 29 some were heard singing on Gardner-near-Hood. On February 3 they were again heard singing on the same island, and on Hood two days later some were singing. On June 24, after the breeding season; three or four calls were heard. Two or three birds we had alive in a basket could, by uttering a single, rich, full note, send all the mockers in sight into the brush as fast as they could travel; this was apparently a cry of warning. The young birds which were about seemed to employ only one call, a shrill cry, used also in begging parents for food. Whenever a Man-o'-war Bird or Galapagos Hawk passed over, although high up, most of the birds would look up apprehensively.

The nesting season appears to be in February. A male taken January 31 had large testes. On the same day I noticed two or three pairs chasing each other on the ground through the brush, an occurrence noted a number of times in the following days. On February 3 and 5 fresh nests were seen. On the latter date I found a nest occupied by a female and four fresh eggs of a greenish blue ground color, covered thickly with pale brown spots. The nest was built at the junction of two bushes, about four feet above the ground. The foundation was of twigs, and was loose and bulky. The inner part consisted of grass, goat's hair, and cotton, and was about two inches deep—shallow compared to two or three other mocker nests seen. The bird did not leave until I was quite close, and then went only a few feet away.

About half of the birds seen during our visit in June were immature. All, however, were as audacious as usual. On June 24 the young birds noted seemed to feed themselves satisfactorily until the parents appeared, when they would become very helpless and solicitous. When a youngster wished to be fed, it fluttered its wings, elevated its tail, lowered its head, and called imploringly to the parent. I did not see any fed, however. Young were noted chasing each other. Adults were in fresh plumage.



On June 30 Mr. Beck took two showing albinistic tendencies. One had a white tail feather, the other had white feathers in the upper side of the wings.

This species is very tame, coming up close to inspect one and often following a person about. One day one alighted on a short walking stick I carried.

#### 15. *Nesomimus adamsi*: CHATHAM ISLAND MOCKINGBIRD

Chatham Island.

This species was common and was found in the littoral, the arid, the humid forested, and the humid grassy zones. During the breeding season it kept more under cover than at other times, and fewer were seen. Few were seen during September in the Wreck Bay region. They were observed on the isthmus to the eastward of the mountainous part of the island and were also common in the crater of Finger Point, a high promontory on the north coast. In the humid grassy country about Mount San Gioacchino they were found in the lemon groves, which have been introduced.

Like the other species of the genus, they are active birds, being at home either on the ground, in the trees, or in the air.

In my notes I have mention of birds singing on the following dates:

January 25; Wreck Bay.

February 8; Basso Point.

February 10; Sappho Cove.

February 23; Wreck Bay.

July 5; Wreck Bay.

July 7; Wreck Bay.

September 7; Wreck Bay.

Birds taken on February 23, at Wreck Bay, had large reproductive organs.

Eggs and nests were found as follows:

On January 26 Mr. Hunter obtained three well-incubated eggs from a nest taken in the vicinity of Wreck Bay. On January 29 I saw a bird building a nest high in a tree. The nest appeared to be made of loose twigs.

On February 8, on the mountain above Basso Point, Mr. Beck obtained a nest and one fresh egg. The nest was made of twigs and moss of two or three species and lined with fine grass stems. It was placed in a small bush and was nine feet



above the ground. The parents made no sound while in the vicinity of the nest, as was frequently the case when the nest was taken.

On February 10 a nest containing one fresh egg was taken at Sappho Cove. The nest was built in the usual style and was placed 12 feet above the ground in the fork of a tree. It was composed of twigs, grass stems and leaves. The parent remained on the nest until closely approached.

On February 13 Mr. Beck obtained two fresh eggs from a nest found near the center of the isthmus connecting the northeastern and southwestern portions of the island. The nest was composed of twigs, dry grass, and a few cotton balls; it was lined with fine grass and rootlets.

On February 14 one or two old nests were seen in the bushes along the beach near Sappho Cove. Mr. Beck obtained three fresh eggs from a nest found near the center of the above-mentioned isthmus. The nest was in a tree 18 feet above the ground. It was made of dry twigs, many cotton balls, dry grass, and orchilla moss. It was lined with fine grass, rootlets, and bunches of very soft spines from the leaves of the *Opuntia*.

On February 21, at Wreck Bay, I saw two or three new nests. A nest containing five eggs incubated about six days was found. The nest was bulky, and was built of twigs and moss, the inner part being made of grass. It was 13 feet above the ground in a bush beside the wagon road. The owner sat bravely on the nest while I was scarcely two feet away. After I had removed the nest, it sat for a minute where the nest had been.

On February 22 I saw two or three nests in bushes of *Zanthoxylum pterota* overhanging a good-sized stream in the forested country on the south slope of the mountains. On the same day Mr. King obtained a nest in the Wreck Bay region. It contained three fresh eggs, and was placed, with the usual foundation of twigs, in a tree 18 or 20 feet above the ground.

Nestlings and young just out of the nest were noted as follows. On January 25 Mr. Beck took two partially fledged young from a nest in the vicinity of Wreck Bay. The following day Mr. Hunter obtained three nearly naked young from a nest. On February 21, at Wreck Bay, I found a nest

with three newly-hatched young. While I was in the tree examining the nest the parents kept very close to me. They made very little noise, but one picked my hand when I placed it near the nest. On February 23, in the same region, two or three young just from nests were seen. The species seemed commoner than it had been in the previous month.

On the whole this species was fairly tame, but not nearly so tame as the Hood Island species. The Chatham birds were particularly tame and inquisitive in September; probably many of them were immature and inexperienced birds at that time of the year.

Birds with diseased feet were not uncommon and were observed at Basso Point as well as at Wreck Bay. Many species of land birds were noted in this condition at every visit we made to Chatham. Mockers were noted in October, January, and February. This disease appears to begin very early in life, as a young one with diseased wings, bill, feet, and neck, and but a short time from the nest, was taken on February 23.

Cats, which are quite common, must decimate the numbers of this species to a considerable extent. During our stop at Wreck Bay in latter January, Mr. King heard two or three mockingbirds making considerable noise, and upon creeping toward them, saw a large black cat on the ground beneath their tree, and against whom their angry outcries were directed.

#### 16. *Nesomimus melanotis*: BLACK-EARED MOCKINGBIRD

Abingdon, Albemarle, Barrington, Bindloe, Culpepper, Daphne, Duncan, Indefatigable, James, Jarvis, Narborough, Seymour, Tower, and Wenman islands.

Generally distributed and exhibiting considerable variation on different islands, this species was seen more or less commonly on all of the above islands, except Culpepper, Daphne, and Duncan. On the last-named island I saw one in the south crater on August 14, my attention being attracted by its continual chirping. On Daphne I saw one, July 25. None were seen on Culpepper.

Black-eared Mockingbirds were found in all the life zones from the seashore to the mountain top, with one exception,

viz., the thick, almost impenetrable fern belt crowning the summit of Abingdon. On the south side of Indefatigable they were found in the moist zone, although not to such an extent as in the dry. On a rainy day in the higher part of the moist zone they were certainly wet and bedraggled creatures. On James they were observed from the seashore to the top of the island. On southeast Albemarle they were seen in the arid, the forested humid, and the grassy humid belts, and also in the great crater, the vegetation of which is rather that of the arid belt. They were noted sparingly on the lower slopes of Iguana Cove Mountain, Albemarle. On the east side of Cowley Mountain, Albemarle, they were seen as high as 2500 feet, which is in the arid belt. On Tagus Cove Mountain, Albemarle, they were not noticed commonly above 1500 feet elevation. On Banks Bay Mountain, Albemarle, they were seen as high as we went, 2100 feet. On Abingdon they were noted in both the arid and humid belts on the south side of the island. On Narborough they were observed in the arid region to the north of the great mountain, and they doubtless also occur at high elevations in the humid belt. Occasionally they were noticed in mangrove swamps, and they commonly frequented the sea beaches and the neighboring brush. On James they were noted among the rocks at low tide, while on Bindloe they were as common along the seashore as inland.

Their walk and flight is the same as that of the other species of the genus.

The food of this species proved to be varied. Among exceptional things they ate might be mentioned tortoise fat and lizards. One which stayed about our camp on the west side of Tagus Cove Mountain took a dead lizard I threw to it. The bird carried the lizard away a few yards, and then proceeded to devour it, first puncturing it with repeated stabs of its beak. Some, which we kept alive on board the vessel on the homeward voyage until off the coast of Baja California, enjoyed live cockroaches and dermestes very much, taking them from our fingers.

The song of the mockingbirds of this species on Barrington was noticeably different from that of the Chatham Island Mockingbird. The Black-eared Mockingbird was heard in song during every month except February, May, and June,

when we were out of the range of the species, and on all of the islands of its range, except Jarvis, Narborough, Abingdon, and Wenman. It was in song the least during the nesting time, when it was rather inconspicuous. Besides the song, this species also has a sort of chirp of several notes used as a signal of alarm and as a call note. Birds were heard in song on Barrington in July, while they were not heard on Indefatigable. I one day heard one singing while it was sitting on a dead tree in the middle of a large salt lagoon on southeast Albemarle.

The following notes were made on the condition of the reproductive organs:

October 21; Barrington; somewhat enlarged.

October 31; Villamil, Albemarle; testes enlarged.

November 6; south Indefatigable; considerable sexual enlargement.

March 13; ten miles west of Villamil, Albemarle; large.

March 26, 27; Tagus Cove, Albemarle; large.

April 17-19; north Narborough; large.

September 22; south Abingdon; small.

September 24; Wenman; medium-sized.

On Bindloe, on September 17, I saw a pair in the act of coition in a tree.

Owing to our absence from the greater part of the range of this species during the breeding season, we found it nesting only on Albemarle. Two occupied nests were found in bushes of *Zanthoxylum pterota* beside the wagon road in the humid forested zone on the mountain of southeast Albemarle on March 8. Both were about 12 feet from the ground. One contained three eggs with incubation begun; the nest in this case was of twigs, lined with grass, hair, etc. The second nest contained three newly-hatched young and two eggs ready to hatch. The parent of these was on the nest when it was pulled down; she uttered a cry and flew off a few feet, but made no other disturbance.

On March 12 a nest with a bird sitting on four fresh eggs was found near the coast about 10 miles west of Villamil. The nest was in a bush some nine feet above the ground, and was made of twigs and lichens lined with roots, grass, and hair. The bird made two or three outcries when I reached for the eggs.

Young and immature birds were noted as follows:

- March 5; Villamil, Albemarle; I took three young, which were flying about.
- March 7, 8; southeast Albemarle; in the moist region I saw four or five birds of the year.
- March 13; ten miles west of Villamil, Albemarle; I took one bird of the year.
- March 15; Cape Rose, Albemarle; two or three young birds.
- March 26, 27; Tagus Cove, Albemarle; about two-thirds of the birds observed were young.
- March 30, 31; Tagus Cove, Albemarle; many young.
- April 2; Tagus Cove, Albemarle; young about as common as adults; two or three young above fifteen hundred feet elevation.
- April 12; Banks Bay, Albemarle; mostly young.
- April 13, 14; Banks Bay, Albemarle; young and old in equal numbers.
- April 25; ten miles west of Villamil, Albemarle; young birds noted.
- July 9; Barrington; one young one in spotted plumage.
- September 19; south Abingdon; one young one with spotted breast.

Black-eared Mockingbirds usually occurred singly or in pairs and did not associate with other birds to any extent. An exception was noted when we landed on Wenman, where a pair of these mockers along with a dozen Northern Cactus Finches were peering over a ledge at us within a couple of feet of our heads.

We did not meet with these birds at sea, as we did certain other Galapagos land birds. The finding of one on Duncan and of one on Daphne was the only proof we had that they moved about somewhat from island to island.

As these birds ate most anything, they had little or no sharp competition with other species. On south Indefatigable I saw one drive a Parrot Tree Finch from some heliotrope blossoms on which it was feeding; this was done by making a swoop at the finch. A little later I saw another similar occurrence, the victim being a Sturdy Ground Finch.

Four, which we kept in captivity with a number of Galapagos Doves, proved quite warlike, killing two doves, apparently by striking them on the head with both bill and wings. One mocker in particular seemed to take a mischievous enjoyment in chasing doves.

All were tame and inquisitive; least so, however, in the breeding season. Their tameness and inquisitiveness varied on the different islands, being at the maximum on Bindloe.



The mockers of Barrington were not as inquisitive as their congeners on Chatham, which is inhabited. They were very amusing in their actions. I remember one in particular, an Indefatigable bird, which was prying into things around our camp and inadvertently jumped into a bed of live coals. It jumped out with great alacrity, much amazed and alarmed.

Their tenacity of life was not great, being decidedly less than that of sandpipers and snipes, birds of about the same size.

On Albemarle these birds have cats to contend with, in addition to the owls and rats common to so many of the islands.

#### 17. *Dendroeca petechia*: JAMAICAN YELLOW WARBLER

Abingdon, Albemarle, Barrington, Bindloe, Brattle, Champion, Charles, Chatham, Culpepper, Daphne, Duncan, Enderby, Gardner-near-Hood, Hood, Indefatigable islands, islet off northeast James, James, Jarvis, Narborough, Seymour, Tower, and Wenman islands.

Abundant on none of the islands, yet generally distributed over all of them, both large and small, these birds were usually seen singly. They were found from the rocks below the high tide line to the tops of the mountains. They were essentially birds of the arid and littoral regions, as can be seen by the number of islands in the list which have no moist region. In September, on Cocos Island, Costa Rica, where the climate is exceedingly humid, they were fairly common and a good many were noted feeding among the rocks along the beaches at low tide.

On Charles they were as common in the humid region as in the arid. On Chatham they were seen in both the arid and the humid belts. On southeast Albemarle, in March and August, they were noted in the humid forested region as high as Santo Tomas. I did not note any in the humid region of James. On Iguana Cove Mountain, Albemarle, they were seen chiefly below the 300-foot elevation at the time of our visit in March. One old nest, and also one new one, was seen at about 700 feet elevation. On the west side of Tagus Cove Mountain, Albemarle, they were pretty generally distributed, the arid belt extending practically to the top of the



mountain. On the south side of Indefatigable they were not seen in the damp region. On the east side of Cowley Mountain, Albemarle, they were seen as high as 2500 feet, the highest altitude we reached; there was practically no moist region, however.

This species might be said to be more of a ground bird than any of the *Camarhynchi*. Often they were seen catching insects on the beaches, making dashes after them. At Academy Bay, Indefatigable, on November 16, I saw a few feeding on the bed of a salt lagoon from which the water had nearly evaporated. On Jarvis they were also noted on the lagoon beaches. In March and April they were found in the mangroves on the east coast of Narborough. They were observed commonly in similar locations on the shore of Banks Bay, Albemarle, in the same month. On April 15 and 16 some were observed feeding on caterpillars. On Hood they were observed feeding among the rocks at low tide in company with the Sooty Ground Finch and the Gray Certhidea. On Abingdon they were observed in like locations in company with the former species. At Villamil, Albemarle, one was noted in the wood pile next to a house. In the interior they proved to be birds of the trees and bushes.

The first singing was heard on Duncan on December 13. On Chatham in January they were singing commonly in the Wreck Bay region. In February they were heard singing in the country about Sappho Cove, Chatham, and a few were heard in the Wreck Bay country. On February 28 birds on Charles were in song. In March I heard birds singing in the coastal region 10 miles west of Villamil, Albemarle. On Tagus Cove Mountain, Albemarle, they were heard as late as March 26 and 27. At Banks Bay, Albemarle, April 10, one or two were singing in the mangroves. April 25, ten miles west of Villamil, Albemarle, they were singing, while in latter May none were in song on Charles.

The condition of the reproductive organs was noted as follows:

January 25; Wreck Bay, Chatham; sexual organs large.

February 23; Wreck Bay, Chatham; large sexual organs.

May 13; ten miles west of Villamil, Albemarle; large sexual organs.

May 14, 15; Black Beach Roads, Charles; sexual organs reduced in size.

The first signs of nesting were seen on Chatham, in the Wreck Bay region, on January 25; when two or three were seen gathering nesting material. Two days later Mr. Hunter found a pair building a nest, while on the 29th Mr. Beck took a nest containing one fresh egg. This nest was nicely and symmetrically made of fine dry grass stems and fibres, a few cotton balls, and leaves of two or three different kinds. It was placed in a thick bunch of green limbs nine feet from the ground.

The greatest number of eggs taken from any nest was three. On February 8 Mr. Beck obtained a nest high up on the mountain above Basso Point, on the northwest coast of Chatham. On February 9, near Sappho Cove, Chatham, I saw two or three fresh nests in the crotches of small slender bushes about seven feet above the ground. They were made of grass plastered on the outside with cotton and leaves. One female I found on an empty nest. When I intruded she stayed within two or three feet, constantly uttering short, quick notes; she seemed quite disturbed.

On February 13, at Sappho Cove, Chatham, a nest with one fresh egg was taken. The nest was of the usual style, and placed seven feet from the ground in the branches of a small tree. It was composed largely of cotton balls, lined with fine rootlets and grass. On February 23, only old nests were found in the vicinity of Wreck Bay, Chatham.

On Charles on February 28, I took a nest with two fresh eggs. The nest was small, compact, made of grass, and lined with cow or pig hair; it was 11 feet above the ground in a bush. Another nest taken March 2, contained one fresh egg; it was five feet above the ground in a small lemon tree, and was composed of grass and cotton balls. The owner tried to decoy the collector from her nest by feigning a wound. On March 5, this species was nesting at Villamil, Albemarle. On March 10, a very vertically-elongated nest composed chiefly of cotton balls was secured. On April 7, three fresh eggs were taken near Tagus Cove, Albemarle, the nest being in the top of a small tree in the flat country near the sea. It was composed about the same as usual, dry grass stems, cotton balls, and a lining of fine rootlets. April 13 and 14, only old nests were noted in the Banks Bay country, Albemarle.

Immature birds were noticed on Champion, October 3, and at Black Beach Roads, Charles, October 11. On February 23, at Wreck Bay, Chatham, a young one just from the nest was taken. On the 28th in the same locality a nest containing two slightly-fledged young was found. On March 6, a young bird with almost white underparts was observed at Villamil, Albemarle. Then miles west of Villamil, Albemarle, two partially-fledged young were found in a nest placed 10 feet from the ground in a bush in a mangrove swamp. I also saw an adult bird feeding a youngster on a limb. At Cape Rose, Albemarle, on March 15, I saw a young bird fresh from the nest. On April 4, Tagus Cove, Albemarle, I saw two or three in an immature cream-colored plumage. On April 8, a nest found in the Tagus Cove region, Albemarle, contained two young about able to fly, one, in fact, sitting on the outside of the nest. April 10, one in pale cream-colored plumage was observed at Banks Bay, Albemarle. In the Black Beach Roads region, Charles, on May 26, birds were seen in all stages from white-breasted immature birds to adult males. Hood, June 23, several immature birds were noted; the following day nearly all were immature, only a couple of adults being seen.

On Hood in January and February, they seem to retire to the higher parts of the island which are green whilst the lower parts are still dry. Neither Mr. Hunter nor I observed any about Gardner Bay, where on our other visits they were fairly common; they were found only in the interior.

Of all the Galapagos land birds, this warbler is met with most frequently away from the land. On January 12, one was seen flying over the water at Academy Bay, Indefatigable. On May 4, when 10 miles west of Charles, one alighted in the rigging about 8 A. M. When 20 miles south of Indefatigable on May 18, a calm day, one came aboard in the morning. On May 23, when off west Charles, two investigated the vessel on the wing and then kept on their journey towards Albemarle. On the morning of June 6, when 20 miles south of Brattle, two flew about the vessel. On June 23, two or three miles south of Hood one passed the vessel.

On July 15, while lying at anchor in Academy Bay, Indefatigable, one of these little warblers came aboard, remaining all day. It spent its time catching flies and cockroaches, and was very tame, even alighting on our heads. On July 17, the same bird was still aboard. It had become exceedingly tame, and one could occasionally stroke it with a finger. One or two others had also come aboard.

Some of the individuals taken on Chatham had diseased feet.

#### 18. *Certhidea olivacea*: DARWIN'S CERTHIDEA

Abingdon, Albemarle, Bindloe, Charles, Chatham, Culpepper, Duncan, Indefatigable, James, Jervis, Narborough, Seymour, Tower, and Wenman islands.

This bird was found more or less commonly on all of the above islands, although it was not gregarious as were the finches. It was usually encountered singly. It was found in every life zone, the arid, the humid, and the grassy treeless zone of the high mountains.

On Charles it was rather uncommon. Examples were taken, however, on all three visits, October, February-March, and May-June; most commonly during the last two. They were found all over the wooded interior and on the southern slope of the island, chiefly in lemon and orange groves.

On Chatham they were quite common in the Wreck Bay region in the wooded humid belt and in the region intermediate between the humid and the arid. Mr. Beck took the nest and eggs of this species from near the center of the low isthmus northeast of the high mountainous part of the island. On February 22, I noted a few along the banks of a moderate-sized stream in the forest on the south slope of the mountains just below the grassy pasture country.

A few were seen in the southeast coast region of Indefatigable opposite Barrington, one being noted in a mangrove swamp. Two were seen in a like location on south Indefatigable, November 6. On south Indefatigable, inland from Academy Bay, they were found commonly in the humid forested belt up to 1100 feet, as high as we went. On our visit to this zone in November, they were found to be the commonest land bird from 525 feet to 700 feet elevation.

On November 12, one was seen feeding in a bush near the beach. A few were noted in November, on the barren north and northeast coasts of the island. In January, they were common at Academy Bay from the beach up to 1000 feet elevation in the moist region, where they were most numerous. During July, at Academy Bay, a few were noted in the arid belt. On northwest Indefatigable in the same month several were seen in the arid region near the coast, one or two actually being seen on the rocks of the seashore.

At Villamil, Albemarle, three or four were seen in October and November, and on March 6 another was seen. On March 7 and 8, while on a trip inland on the southeastern mountain of Albemarle, a few were seen in the moist zone. Eight examples taken by Mr. Hunter proved to be males. On March 12, one was noted in the brush near the coast 10 miles west of Villamil. One or two were seen near Villamil on August 22. On August 27 to 30, it was noted in the open treeless country above Santo Tomas, Albemarle. None were seen on Tagus Cove Mountain, Albemarle, but Mr. Beck writes me that on previous expeditions he has found them commonly high up on the mountain during the breeding season. On April 12, one was seen at the western base of Banks Bay Mountain, Albemarle. On the two following days a few were noted from the base of the mountain up to about 2000 feet. On August 10 and 11, three or four were noted high up on the east side of Cowley Mountain, Albemarle. Two were observed on South Seymour on November 21; on July 26, I took a bright-plumaged male. On Duncan in December, occasional birds were seen; half a dozen were seen on August 14. Three or four were taken on Jervis in December.

While on a visit to an island of vegetation in a sea of recent lava in the dry region on the south side of James on December 19, one or two were noted. At James Bay, James, they were common in the humid zone during the same month. At Adams Cove, an exceedingly dry and sterile locality north of James Bay, one or two were seen. January 2 to 4, they were remarked as common on the mountain back of James Bay. On northeast James, northwest of Sullivan Bay, it was feeding chiefly in the bushes



along the shore, although it was occasionally seen inland. On July 28, twenty were seen in the former locality, and only one or two inland. At James Bay, in the following month, August, I noted two about the lagoons at the beach.

On Tower in September a few were seen, this species and the Black-eared Mockingbird being the commonest land birds on the island, which is low and in the arid belt. A few were also seen on Bindloe a day or two later; this island is also low and rises little if any above the arid belt. On September 19, on the south side of Abingdon, for three or four hundred feet below the fern belt at the summit, I saw this species commonly. They seemed to keep dry, as on Indefatigable, despite the continual rain. The following day in the arid belt three or four were noted. One male was in full song as he hopped about the dry bushes. On Wenman six or eight were taken in all. Four or five were taken on a landslide on the north side of Culpepper.

These birds fed in the trees and bushes and were not ground feeders. They were very active and constantly on the move, although they examined each twig carefully, often hanging head downwards as did the Black-headed Tree Finch. They seldom made any flights, but kept entirely in the trees and shrubs. They were insect feeders. On December 22, however, at James Bay, James, I saw one eating a green leaf.

Birds were heard singing on southwest Chatham on February 23, and at Iguana Cove, Albemarle, on March 19 and 20. The condition of the reproductive organs was noted as follows:

October 17; Wreck Bay, Chatham; testes enlarged.

February 23; Wreck Bay, Chatham; large sexual organs.

September 20; south Abingdon; one male with very large testes.

September 25; Culpepper; sexual organs large.

The first nest and eggs of this species were found by Mr. Beck on February 13, near the center of the isthmus joining the northeast and southwest portions of the island of Chatham. The nest contained three eggs incubated about six days. A parent was at the nest, which was similar to that of a ground finch and was made of orchilla moss, fine grass, and cotton balls, lined with shredded grass. It was in a bush about two feet above the ground.

On February 23, Mr. King found a nest with two fresh eggs. It was 12 feet from the ground in a bush of *Zanthoxylum pterota* beside the wagon road on southwest Chatham. The nest was small and domed and built of moss and grass with a few small twigs interwoven. The outside was covered with cotton balls. The lining was of fine grass. One of the parents was on the nest. Both of the old birds were quite excited, making a clicking noise similar to that made by the ground and tree finches when their nests were disturbed. One of the birds sat on the nest site after the nest had been removed.

The first young bird was taken in the interior of Charles on February 28. It was the only immature bird out of about a dozen individuals taken that day. On March 19 and 20, many young were met with above 300 feet on Iguana Cove Mountain, Albemarle. On May 25, two young in striped plumage were taken in the interior of Charles. Like most of the Galapagos land birds this species was quite tame. Many of the individuals taken on Chatham had swollen diseased feet.

#### 19. *Certhidea cinerascens*: GRAY CERTHIDEA

Barrington, Gardner-near-Hood, and Hood islands.

This species was quite common on Hood and the neighboring Gardner, while on Barrington it was not common. Unlike its congener, Darwin's *Certhidea*, it was found on the rocks of the seashore below the high tide line, as well as in the brush. In fact one was seen bathing in a pool of sea water.

In the bushes these birds were insect feeders, inspecting each branch carefully. On the rocks of the coast they probably fed on small marine worms as did the Sooty Ground Finches. They were seen feeding on the seashore on Hood and Gardner in September and October, and in June, in company with Sooty Ground Finches, Jamaican Yellow Warblers, and Hood Island Mocking birds. On Barrington they were seen only in the brush, where they were very hard to detect as they matched it almost exactly in color. On June 27, on Gardner-near-Hood, I saw two or three feeding on the ground in the open, which was unusual.

We heard them singing on Hood and Gardner-near-Hood in early February. Birds taken about that time had large reproductive organs.

On January 31, in bushes close to the beach at Gardner Bay, Hood, I found two or three nests, shaped like *Geospiza* nests, but much smaller. They were built of roots, and I suspect belonged to the Gray Certhidea.

## 20. *Geospiza magnirostris*: GREAT-BILLED GROUND FINCH

*Geospiza strenua*, Rothschild & Hartert, Nov. Zool., v. 6, p. 155; v. 9, p. 388;  
Snodgrass & Heller, Proc. Wash. Acad. Sci., v. 5, p. 330.

Abingdon, Albemarle, Barrington, Bindloe, Charles, Chatham, Culpepper, Duncan, Indefatigable, James, Jervis, Narborough, Seymour, Tower, and Wenman islands.

Although widely distributed, this species is by no means abundant. At no time did we find it in flocks, although in some localities quite a few were seen. It seemed to inhabit the arid region chiefly, although on Abingdon and James it was found in the humid belt. We first met with it on South Seymour on November 21, when two were noted.

Two were seen on north Indefatigable, November 25. On the south side of that island in January, two or three were taken at the water hole near the beach at Academy Bay. Mr. Beck saw several inland in the dry region. In the middle of July in the same locality, I shot two very large-billed ones and a third one was seen. On northwest Indefatigable, south of Conway Bay, on July 21 and 23 two were taken.

On Jervis quite a few were seen during our visit in the latter half of December. They were noted from the beach to the summit of the island. One or two specimens had white feathers in the abdominal region.

James was also a stronghold of this species. They were observed mostly in the moist region, although on December 26, at Adams Cove, on the arid northwestern corner of the island, two or three were taken, one being a male with large testes. A black male taken December 28, had a white feather on its neck. In the humid region on the west side

of the main peak in early January we found quite a few. On August 7, Mr. Beck took specimens inland in the James Bay region. The following day I took one in the brush on the east side of the lagoon at the beach. None were noted in the rugged, sterile, northeastern part of the island.

Near Cape Rose on the south coast of Albemarle, a young bird fresh from the nest was taken on March 15. An adult with large reproductive organs was taken at about 450 feet elevation on Banks Bay Mountain, Albemarle, in April. It was feeding on a green leaf on a bush. In the middle of August of the same year, on Cowley Mountain, Albemarle, a half dozen were seen in the dry region a little above 2500 feet elevation.

On Charles the largest-billed birds of all were taken, the first being captured on June 1. I took a young female which was feeding in the gravel beside the road about half way up the western slope of the island. Mr. Beck took two or three immature ones at the spring in the interior. On June 4 Mr. Beck took three or four more near the spring, and Mr. Hunter took one half way up the road.

On Tower on September 14 and 15 three or four were seen each day. They were a bit shy as were most of the land birds. On the second day they were heard singing. Two were noted on Bindloe on September 17. On the south side of Abingdon quite a number were seen in the lower part of the moist zone and in the arid region below. Occasional individuals were noted feeding on the ground. Eight or 10 were taken on Wenman on September 24. The following day three were taken on a landslide on the north side of Culpepper. This was the only accessible part of the island. A male from that island had large testes.

#### 21. *Geospiza conirostris*: CONICAL-BILLED GROUND FINCH

Culpepper, Gardner-near-Hood, Hood, and Tower islands.

The Conical-billed Ground Finch was common on Hood and the neighboring Gardner. On Tower and Culpepper it was much less so. All of these islands are so low that their summits do not project above the dry zone, hence this species may rightly be said to be confined to that zone.

On Tower, September 14, I saw three or four, and on the following day one or two. One was taken on a landslide on the north side of Culpepper on September 25. On Hood and Gardner-near-Hood they were quite common on all three of our visits: September-October, January-February, and June-July.

This species feeds chiefly on the ground, and in the wet season (February) in the green bushes as well. On September 24, Hood, numbers of this species and the Sooty Ground Finch were sitting in the brush and cactus when not feeding. The following day some were noted on the rocks on the shore of Gardner Bay. On September 28, they were noted both in the brush and on the beach. When on the ground they feed on small seeds. On February 5, Hood, they were feeding chiefly on thorn bushes. I saw one eat a green leaf.

In the early part of February, on Hood and Gardner, many were singing, and all had large reproductive organs, as this was the mating season. On February 3 I noted a pair pursuing each other about the bushes. One female had a large shell-less egg in her ovary. On the 5th of February, some were noted nest-building. One couple which I watched had a nest in a thickly-leaved *Maytenus* bush at the beach; it was about seven feet above the ground and built of grass. The male was doing the building, while the female was feeding. He would fly to the ground and pick up three or four pieces of grass, holding them crosswise in his bill at the base of the mandibles. He would then fly up to the nest and enter, returning in a minute for more. He sang nearly all the time—not one continuous song, but a short one oft-repeated. The female was silent and seemed to pay no attention to his operations. The eggs of this species were not taken.

On June 27, the majority of the few birds seen on Gardner-near-Hood were black. Their chief associates, and doubtless competitors, are the Sooty Ground Finches and the Galapagos Doves. Finches were seen flying between Hood and Gardner quite often and doubtless some belonged to this species. Aside from this none were observed at sea. Like the remainder of the birds of Hood, this species was tame.



## 22. *Geospiza fortis*: STURDY GROUND FINCH

Abingdon, Albemarle, Barrington, Bindloe, Champion, Charles, Chatham, Cowley, Daphne, Duncan, Gardner-near-Charles, Hood, Indefatigable, James, Jervis, Narborough, Seymour, and Wenman islands.

Next to the Sooty Ground Finch, this species and the Cactus Finch were the two most abundant and widely distributed finches of the archipelago. It was common on Champion during my first visit, on Abingdon, Albemarle, Chatham, Daphne, Duncan, Indefatigable, and South Seymour. It was very common on Charles. On the other islands it was not scarce, except on such small ones as Wenman and Cowley. Individuals of this species do not seem to be as numerous anywhere as are the Sooty Ground Finches, nor have they such a wide altitudinal distribution as the latter.

They were found in the dry zone of the islands listed above. Several birds, apparently of this species, were taken on Hood in February and June. They did not frequent the seashore at low tide as did the Sooty Ground Finches. One or two were found in the humid region on south Indefatigable at about 425 feet elevation in November. On Duncan they frequented the south crater which is within the dry region. On James in December a few were noted below the moist region. Again on south Indefatigable in January, several were noted in the moist region. They were also frequently seen at the water hole at Academy Bay. On Charles they were common from the seashore to the top of the highest peak. On Iguana Cove Mountain, Albemarle, in March, they were common above 250 feet elevation, but one being seen below. On Tagus Cove Mountain, Albemarle, in April, they were seen in the arid region above 1500 feet as well as at the base of the mountain. Twice at our camp on the shores of Banks Bay, Albemarle, in April, I observed one of these birds in the mangroves. In this locality they were seen in the gently sloping country at the base of the steep and lofty northern peak of Albemarle. On the north side of Narborough during the same month several were taken on the lower slopes of the mountain. On southeast Albemarle a few

were seen in the moist region in March. None were seen in the elevated grassy belts on the high peaks of Chatham and southeast Albemarle.

Feeding for the most part on seeds on the ground, these birds were often found in company with the Sooty Ground Finch, the Cactus Finch, and the Galapagos Dove. On Charles in October, flocks of 20 or 30 were seen feeding near the coast with the two finches just mentioned. In May large flocks of this species and the Sooty Ground Finch, with an occasional Cactus Finch, were seen just below the divide on the western side of the island. On Champion in the same month they were found commonly in the little crater of the island. On Barrington one was noted feeding on an old cactus blossom. On Duncan they fed on seeds, for the most part in the south crater with large flocks of Sooty Ground Finches and Galapagos Doves. On Chatham this species and the Sooty Ground Finch were the only species which consorted about the buildings at the shore. There they acted like the House Sparrow (*Passer domesticus*) in California. At Iguana Cove, Albemarle, in March, they were feeding on bushes and trees and not on the ground. On Charles in May, some were feeding on green tropical plums on the trees in company with other finches. Single birds were also seen feeding in cactuses (*Cereus*) and occasionally one or two were noted in orange trees. At Villamil, Albemarle, in August, one or two were seen feeding in the village. At the springs in the interior of Charles they were observed drinking with the other finches, hanging on the dripping moss on the almost perpendicular wall of the spring. It would seem upon comparison with the food habits of the Sooty Ground Finch, that the food of this species is not as varied.

They were noted as singing at Basso Point, Chatham, and Sappho Cove, Chatham, in February; on south Albemarle in March; at Tagus Cove and Banks Bay, Albemarle, in April. On Charles in May no singing was heard, but some twittering. The young birds chirp, especially when wishing to be fed.

Birds with enlarged reproductive organs were noted on Chatham in February and on Abingdon in September. As

early as November 3 one was seen carrying straw for a nest at Villamil, Albemarle. Another was seen at Wreck Bay, Chatham, carrying cotton, January 29. Their nests were built in the same manner as those of other species of the genus. On Daphne in November there were a few old nests in cactus trees. The nests were usually of dried grass, although in the damper regions moss, lichen, creepers, and small twigs were used. Fine grass, moss, and cotton balls served as lining. As with the Sooty Ground Finch old nests were occasionally repaired and used. In one case a new entrance and a new top were added. Some nests were more domed than others. The openings of most of the nests of Chatham finches are on the northwest side in localities where the nests were exposed to the rains from the southeast. On Charles a nest was taken which had hair and the tops of weeds with seeds for a lining. One nest collected at Tagus Cove, Albemarle, March 24, was of dry grass with fresh green grass inside, and lined with shredded bark from nearby trees. Another nest taken on Narborough, April 18, was wholly of fresh grass, leaves, and stems.

The nests were found in thorn bushes, cacti, lemon trees, trees and bushes generally, vines growing on bushes, and mistletoe. They were often placed in crotches, and on an average about nine feet from the ground, the extremes being 20 feet and three feet.

The following is a list of the clutches of eggs obtained, the state of incubation, etc.:

- January 25; Wreck Bay, Chatham; three, fresh.
- January 25; Wreck Bay, Chatham; two, fresh.
- January 27; Wreck Bay, Chatham; three, fresh.
- January 27; Wreck Bay, Chatham; four, incubation begun.
- January 29; Wreck Bay, Chatham; three, fresh.
- February 9; Sappho Cove, Chatham; two, fresh.
- February 12; Sappho Cove, Chatham; two, fresh.
- February 13; Sappho Cove, Chatham; three, fresh.
- February 13; Sappho Cove, Chatham; four, well-incubated.
- February 14; Sappho Cove, Chatham; four, incubated two days.
- February 21; Sappho Cove, Chatham; four, fresh.
- February 28; Charles; two, fresh.
- February 28; Charles; three, fresh.
- February 28; Charles; three, fresh.
- February 28; Charles; three, fresh.

February 28; Charles; four, fresh.  
March 1; Charles; four, fresh.  
March 2; Charles; two, fresh.  
March 2; Charles; four, fresh.  
March 2; Charles; three, fresh.  
March 2; Charles; three, fresh.  
March 2; Charles; two, fresh.  
March 24; Tagus Cove, Albemarle; five, fresh.  
April 18; Narborough; four, incubation begun.

When a nest was disturbed one of the parents or both usually stayed about making a clicking noise. This habit was observed in other species as well.

Young and immature birds were observed as follows:

February 23; Wreck Bay, Chatham. Mr. Beck took one or two well-fledged young ones.  
March 8; Southeast Albemarle. One bird of the year was taken.  
March 13; ten miles west of Villamil, Albemarle. I took a young bird of the year.  
March 15; Cape Rose, Albemarle. I saw two or three immature birds. One was being fed by an adult male. They kept up a continual chirping.  
March 19, 20; Iguana Cove, Albemarle. I saw several young birds and noted a black male feed two well-feathered youngsters. I found a nest on the 19th containing four unfledged young four or five days old.  
March 30, 31; Tagus Cove, Albemarle. I observed one or two birds of the year at the base of the mountain.  
April 2; Tagus Cove, Albemarle. One young one seen.  
April 12; Banks Bay, Albemarle. Young plentiful.  
April 13, 14; Banks Bay, Albemarle. Many young.  
May 31; Black Beach Roads, Charles. Rather common, few adults.  
September 19; South Abingdon. Mr. King found a nest with young.  
September 21; South Abingdon. One or two very young birds seen.

This species travels from island to island to a certain extent. One was taken on September 24 at Wenman, an island from which it has not been reported. On May 23, when three or four miles west of Charles a bird-of-the-year alighted on board the schooner. It apparently came from Charles and seemed to be headed towards Albemarle or Indefatigable. Two Jamaican Yellow Warblers were also seen travelling in the same direction. This was during the calm season of the year, as were also the next two instances. An immature one alighted on the vessel on June 6, when about 20 miles south of Brattle. I caught it in my hand.

After letting it go it flew off toward Albemarle. On the following day in latitude  $1^{\circ} 43'$  S. longitude  $91^{\circ} 24'$  W. two came aboard at different times; they were either immature birds or females.

When at Iguana Cove, Albemarle, I saw a black male bathing in a pool of water in a rock at about 250 feet elevation; the water was at least of a temperature of 100 degrees Fahrenheit. This species proved as tame as the average of Galapagos finches. Quite a number of the birds on Chatham, both at Wreck Bay and Sappho Cove, had swollen diseased feet, as have most of the other passerine birds. Occasionally birds with diseased bills were taken. West of Villamil, Albemarle, in April, I saw a young Sooty Ground Finch trying to induce a large-billed adult Sturdy Ground Finch to feed it.

### 23. *Geospiza fuliginosa*: SOOTY GROUND FINCH

Abingdon, Albemarle, Barrington, Bindloe, Brattle, Champion, Charles, Chatham, Daphne, Duncan, Enderby, Gardner-near-Charles, Gardner-near-Hood, Hood, Indefatigable islands, islet off northeast James, James, Jervis, Narborough, Seymour, Tower, and Wenman islands.

This species was the commonest of all the Galapagos birds, being found on every island and islet visited, except Culpepper. It was common or abundant on all of the larger islands, except perhaps Narborough, into which we did not penetrate far. It was scarce on the smaller islands of Champion, Daphne, Enderby, islet off northeast James, and Wenman.

It seemed well adapted to every condition of the islands, except the heavy rainfall and dense jungle of parts of the humid region. However, as to life zones, this bird seemed to be confined to none, although on south Indefatigable it was found commonly in the arid region and but very scantily in the densely vegetated humid belt. It was seen commonly at low tide along the beaches below the high water mark. Its greatest stronghold was in the arid belt, however, where it was found as commonly about the settlements as are the House Sparrows (*Passer domesticus*) in parts of California, and in



still greater numbers in the uninhabited regions. It was common in the humid belt, except on Indefatigable. On Abingdon the small-billed form of this species occurs both in the arid and the humid belts, while the large and slender-billed form seemed to be confined almost entirely to the humid belt of the island. In the elevated treeless, grassy country of Charles, Chatham, and southeast Albemarle they were common. On Charles they were seen feeding commonly with the Sturdy Ground Finch on the top of the main peak, which was devoid of trees. On Chatham a few were seen along a medium-sized stream on the south slope of the island. In the great crater of southeast Albemarle, the vegetation of which is that of the arid region, they were common, as well as on the beautiful grassy pasture lands on the southern slope of the mountain. On Tagus Cove Mountain, Albemarle, they were common up to an altitude of 1500 feet; above that they were rather scarce, although the arid region extends to the top of the mountain (altitude 4000 feet) on the west side. Occasionally one was noted in a mangrove swamp.

They fed singly and in large and small flocks on the ground. At certain seasons numbers were seen, usually singly, feeding in bushes like tree finches. This occurred mostly in the wet season when the foliage was green and there were fewer seeds on the ground than later. When not feeding, the birds usually retired to the bushes, cacti, and trees, and often during the hot part of the day kept well under cover, as did other species. The following is an account of their feeding habits and food as observed in the field.

When feeding below the high tide mark they seemed to be in search of small marine worms which occurred quite commonly on the rocks. Birds were taken with their gullets full of these. They were seen feeding thus in September, October, November, December, June, and July. A few were noted feeding at times on the white coral sand beaches.

Above the littoral region they fed in the open spaces on the ground, small seeds forming the bulk of the food. At Post Office Bay, Charles, in October, they were seen feeding close to the shore in flocks of 20 to 30. This same habit was noted on other islands: Duncan, Indefatigable, southeast Albemarle, etc. During October, on Barrington, I noted several

feeding on the pulp of a fallen cactus tree (*Opuntia*). On southeast Indefatigable, in October, several were observed feeding on bushes, two on a bush with a Black-headed Tree Finch. On Duncan they were commonest in the south crater, where they fed in large numbers on the ground with the doves and Sturdy Ground Finches. There also a few were observed feeding on the blossoms of thorn bushes in December. On James, in December, some were noted feeding in trees. On Gardner-near-Hood, in February, they fed principally in the bushes on the northeast side of the island, and on Hood, in the Gardner Bay region, they were seen eating the blossoms of thorn bushes.

Above Santo Tomas, Albemarle, in March, flocks of them were feeding beside the road in the open grassy country. On Banks Bay Mountain, Albemarle, in April, they were observed feeding in the trees on leaves. On Charles, in May, some were seen eating tropical plums; they were also feeding in cacti (*Cereus*) and in orange trees. Large and small flocks were seen during that month with the Sturdy Ground Finch and an occasional Cactus Finch chiefly below the divide on the western side of the island. On northeast James, in August, I noted several drinking the juice of a cactus leaf (*Opuntia*). At Villamil, Albemarle, in the same month, I saw one in company with a Cactus Finch feeding on an old bull skull. At that time and place a good many were seen feeding on the mud of the salt lagoons. At Santo Tomas during that month they proved themselves to be carrion feeders. During our stay there two or three remained about our room during the day, picking up bits of corn and refuse. On Tower and Bindloe, in September, they fed on the bushes largely. On Abingdon a few days later they were seen feeding both on the ground and in bushes.

The freshwater hole on the coast just south of Tagus Cove, Albemarle, was a great rendezvous for this species. There they bathed and drank to their hearts' content. The springs in the interior of Charles were visited by great numbers of the birds as well as by the animals of the island. The finches might be seen hanging to the wet and dripping moss on the overhanging wall of one from which the water drips. A few of this species and the Sturdy Ground Finch were seen drink-

ing and bathing in a temporary water hole on Iguana Cove Mountain, Albemarle, in March.

Adults were noted as being in song as follows: On Hood, Chatham, and Charles in February; on south Albemarle in March; at Banks Bay, Albemarle, in April; and on Abingdon in September. In this last locality only one was heard, however.

The young birds fresh from the nests seemed to do nothing more than chirp, particularly when their parents were about and the youngsters wished to be fed. In fact, one young one was even seen coaxing a large-billed Sturdy Ground Finch to feed it.

The condition of the sexual organs was noted as follows:

- October 30; Brattle; testes very much enlarged.
- October 31; Villamil, Albemarle; testes enlarged.
- December 11; Duncan; considerable sexual enlargement.
- January 31; Hood; fairly large sexual organs.
- February 23; Chatham; large sexual organs.
- March 18; Iguana Cove, Albemarle; one male with large sexual organs.
- April 18; north Narborough; sexual organs large.
- May 15; Charles; sexual organs reduced in size.
- September 20; Abingdon; sexual organs of two were large.

Eggs were found as follows:

- January 25; Wreck Bay, Chatham; five, fresh.
- January 26; Wreck Bay, Chatham; four; incubation begun.
- January 29; Wreck Bay, Chatham; three, fresh.
- January 29; Wreck Bay, Chatham; three, incubation begun.
- January 29; Wreck Bay, Chatham; four, incubation begun.
- February 9; Sappho Cove, Chatham; three.
- February 9; Sappho Cove, Chatham; two.
- February 10; Sappho Cove, Chatham; three, fresh.
- February 10; Sappho Cove, Chatham; one, fresh.
- February 12; Sappho Cove, Chatham; three, fresh.
- February 13; Sappho Cove, Chatham; three, badly incubated.
- February 13; Sappho Cove, Chatham; three, fresh.
- February 13; Sappho Cove, Chatham; two, fresh.
- February 21; Wreck Bay, Chatham; three, fresh.
- February 22; Wreck Bay, Chatham; five, incubated four days.
- February 23; Wreck Bay, Chatham; five, nearly ready to hatch.
- February 23; Wreck Bay, Chatham; three, incubation begun.
- February 23; Wreck Bay, Chatham; four, incubation begun.
- February 23; Wreck Bay, Chatham; four, incubated six days.
- February 23; Wreck Bay, Chatham; three, fresh.

February 23; Wreck Bay, Chatham; three, fresh.  
February 28; Charles; three, fresh.  
February 28; Charles; three, fresh.  
February 28; Charles; three, incubated two days.  
March 1; Charles; three, fresh.  
March 1; Charles; two, fresh.  
March 2; Charles; four, fresh.  
March 2; Charles; three, fresh.  
March 2; Charles; two, fresh.  
March 2; Charles; three, fresh.  
March 5; Villamil, Albemarle; three, well incubated.  
March 5; Villamil, Albemarle; four, fresh.  
March 7; southeast Albemarle; four, begun.  
March 7; southeast Albemarle; four, begun.  
March 12; southeast Albemarle; four, fresh.  
March 13; southeast Albemarle; three, fresh.  
March 15; south Albemarle; three, incubated.  
March 17; Iguana Cove, Albemarle; two, fresh.  
March 17; Iguana Cove, Albemarle; three, fresh.  
March 19; Iguana Cove, Albemarle; four, fresh.  
March 28; Tagus Cove, Albemarle; four, fresh.  
April 5; Tagus Cove, Albemarle; three, fresh.

As can be seen from these dates, these finches nest for the most part in the wet season. In fact, when they were nesting on Chatham in latter January, the wagon road was turned into a river, and small ponds and puddles stood by the roadside for many days. The vegetation was green from the shore up. Such also was the case at Iguana Cove, Albemarle, and on Charles.

On Chatham, Charles, and southeast Albemarle the nests were often placed close to the roads, which on Chatham were travelled daily by many teams and people on horseback and on foot. The nests were always placed in trees, bushes, vines, and occasionally in cacti. Once or twice nests were found in dead trees. The height above the ground averaged about seven and a half feet, the extremes being 15 feet and three feet. Usually, when in a tree or bush, they were placed in a crotch. A few old nests were seen on Brattle on October 30. That island is in the form of a semi-circle, which is part of the wall of an old crater. It is only a few feet wide at the top and supports a scanty growth of bushes in which nests were found.

On Tagus Cove Mountain, Albemarle, in April, I found a nest, apparently belonging to this species, low down in a

thorn bush. It contained four eggs which had been broken when fresh; perhaps the work of rats or mice. A small spider was found in one.

Like the nests of all of the Galapagos finches, the nest of this species is domed and has a side entrance. An exception to this rule was once seen in a nest built in a curled cactus leaf, which had entrances on two opposite sides. The nests were usually built of coarse grass and cotton balls lined with fine grass and cotton. Sometimes they were lined with the bushy tops of grass. I saw an old nest utilized, the owners making a new entrance of fresher dried grass for it. Often the nests were composed largely of orchilla moss or lichens, instead of grass, when built in a region where the grass was very scarce. Sometimes both were used. Leaf fibre was also used to some extent, often along with orchilla moss. Creepers and small vines were limited in their use to the regions where they occurred. Once in a while feathers were used in the lining of a nest, although very rarely. In several cases green grass was used along with the dry material. The hair of cows, pigs, and donkeys was used to a small extent in lining the nests. Mr. Beck found a nest with a large entrance and of peculiar construction, being made with the heads of a small weed, all the stalks facing the same way. Once or twice long narrow nests were found.

When a nest was disturbed the owners usually stayed close by, making a clicking noise.

Apparently the first young bird was noted on Chatham, February 23. It was a well-fledged one, which flew from a nest containing five eggs nearly ready to hatch. On March 13, about 10 miles west of Villamil, Albemarle, I saw one following its parent about and being fed. Two days later, near Cape Rose, Albemarle, I saw a young bird fresh from the nest. At Iguana Cove, Albemarle, March 18, one or two young birds were noted. At about 1500 feet on the west side of Tagus Cove Mountain, Albemarle, on April 2, I saw several in the brush during the afternoon. On April 4, on the same mountain, a nest of five young was found; they had their eyes open, but were unfledged. On April 12, 13, and 14 young birds were found quite commonly on Banks Bay Mountain, Albemarle. On Charles, in latter May and early



June, the majority of individuals of this species, and there were many of them, appeared to be immature, and but few black adults were seen. On south Abingdon, on September 20, two youngsters just from the nests were seen, while Mr. Beck also took one. The following day three or four more were noted.

Their presence on the small islet off northeast James, where one was observed on two visits, and on Wenman, where six were taken, would perhaps indicate that they move about somewhat from island to island. They were often seen flying between Hood and the adjacent Gardner. Occasionally, when we were sailing about the bays in small boats, for example Wreck Bay, Chatham, and the harbor at Villamil, Albemarle, individuals would alight on the boat, being quite fearless. When anchored at Villamil, Albemarle, a short distance offshore, in August, several were often aboard the vessel at one time.

Although they were quite tame, they were not as tame as the flycatchers. Birds with abnormally colored feathers seemed to be quite wary. A total albino was taken at Black Beach Roads, Charles, on October 10, by Mr. Beck. An adult male with a white feather in the abdominal region was taken on Duncan in December. Few black individuals were seen on Charles in May and June. On June 4 I took, at a spring on Charles, a bird which had several white feathers in its head, breast, abdomen, back, and rump, and also a pale primary.

Many individuals on Chatham had diseased feet.

A Galapagos Short-eared Owl was taken on Hood in June, with the remains of a Sooty Ground Finch in its stomach. It was captured about 10:30 A. M.

#### 24. *Geospiza debilirostris*: WEAK-BILLED GROUND FINCH

Indefatigable, James, and Narborough islands.

This species was common on Indefatigable and James, and was seen by Mr. Beck on Narborough, although not taken. The birds on Indefatigable are smaller than those of James, but, like them, were found almost entirely in the humid zone.

They were first found on Indefatigable, inland from Academy Bay on the south coast, in the first half of November. There they were found commonly in the thickly vegetated region of the lower humid belt, usually feeding on the ground under bushes, often in flocks. More than once we shot at one, mistaking it for a rail, so skulking were its habits.

When visiting Academy Bay again in January, they were noted as fairly common from the junction of the arid and humid zones up. They seemed to be lower down on this visit than on the last. I saw one near the beach.

At the time of our third visit in the middle of July they were found in the arid region below 75 feet elevation. I did not visit the humid belt during our stay, so cannot say if they were there also. They did not seem to be common in the arid region. They were found, as formerly in the humid belt, under bushes, digging vigorously in the grass and dry leaves.

On northwest Indefatigable, about 10 or 12 days later, I saw three in the tufaceous arid region near the coast, while Mr. Beck took three or four some miles inland.

Mr. Beck stated that he found this species in the high, humid, thickly vegetated country on the south slope of Narborough. On April 4 he took a nest containing three fresh eggs on the top of the mountain. The parents were seen but not taken. The nest was of dry and green grass with some moss, and was placed in a small cactus at an elevation of five feet from the ground.

The James Island birds are larger than those of Indefatigable, but, like them, are ground finches in the strictest sense of the word. They were found commonly in the green zone at 1500 feet elevation in the James Bay region. A few were noted at an altitude of 2100 feet. This was in December and January. The specimens taken showed no particular enlargement of the reproductive organs. They were found singly and in flocks feeding on the ground under the brush, and doing considerable scratching. The largest flock (say of 20 or 30 birds) we came across was on a rather steep hillside. During our visit to James Bay in August Mr. Beck took several in the lower part of the humid zone. None were found in the rough arid northeastern portion of the island, visited early in

August, nor in the island of vegetation on the south side, to which we made a trip in December from Jervis.

From what little was seen of this bird, it is strictly terrestrial and does not feed in the trees as do the other species. Of course, our experience with it was very limited compared to that with the Sooty and Sturdy Ground Finches and the Cactus Finch.

#### 25. *Geospiza scandens*: CACTUS FINCH

Abingdon, Albemarle, Barrington, Bindloe, Champion, Charles, Chatham, Daphne, Duncan, Gardner-near-Charles, Indefatigable, James, Jervis, Onslow, and Seymour islands.

The Cactus Finch occurred more or less commonly on all of the above islands, excepting Daphne and Onslow. One was taken on the former island on November 23, another on July 25. The latter locality is a mere rock off the coast of Charles, on which one was seen February 25. On Duncan they were not common; however, one or two were noted almost every time we went inland. On the west end of Chatham they were also scarce, two being taken by Mr. Beck on February 23 and two more on July 7. Two were seen on the road near the beach at Wreck Bay on September 8 and 10 respectively. Only two were seen on Cowley Mountain, Albemarle, in August, and they were at an altitude of 2500 feet.

They were perhaps most common on Charles, where they were found both in the arid region and the humid; in the latter chiefly when the oranges were ripe. As a rule these birds were at home in the arid region, particularly where there was a good growth of cactus. The interior of Charles was the one exception. There their occurrence seemed to be governed by the abundance of ripe oranges. In early March, when very few ripe oranges were found, only two or three were noted in the interior. In May they were found commonly in a grove of trees bearing ripe fruit, while elsewhere in the interior they were scarce. This habit of coming into the humid belt to feed is evidently recently acquired and brought about by the introduction of oranges. On islands where oranges do not occur they were not found in the humid belt. On such islands their frequency of occurrence seemed nor-

mally to be in direct ratio with the supply of cactus. Quite often they were observed feeding on the ground.

As already indicated, the three main sources of food are the ground, the cacti, and the orange trees. Flocks of 20 to 30 birds of this species, often mixed with the Sturdy Ground Finch and the Sooty Ground Finch and sometimes accompanied by the Galapagos Dove, were seen feeding on the ground at various seasons. They also fed singly and in small numbers on the ground, both alone and with other species. On Duncan, in August, they were observed feeding on the ground, but in the preceding December they were seen only in cacti.

A cactus tree was the characteristic setting of this species, which feeds upon the soft moist pulp. On one occasion I noted several of this species and the Sooty Ground Finch feeding upon the pulp from the trunk of a fallen cactus tree. At Villamil, Albemarle, a few were remarked as feeding on low bushes as well as on cacti, and some were seen on banana trees. Cactus blossoms were much relished, and birds were commonly observed feeding on the flowers. Several were seen with pollen-covered beaks. A bird, taken on the south side of James on December 19, had its gullet filled with a yellow fluid, apparently extracted from cactus blossoms.

Oranges seemed to be much relished, the birds eating the ripe and overripe fruit on the trees. They dig a hole in the top and then pick the pulp out, often leaving nothing but the bare rind. They also eat figs and tropical plums, both fruits having been introduced on Charles. It would seem that the coming of man has been a benefit to this species, owing to its fondness for fruit.

At Villamil, Albemarle, in August, I saw one in company with a Sooty Ground Finch feeding on the skull of a bull recently killed. None of this species was observed at springs. They do not seem to frequent them as do some of the other finches. Probably they obtain sufficient moisture from cacti and oranges.

On March 1, at Black Beach Roads, Charles, I saw the black males of this species and the Sturdy Ground Finch singing with wings partially spread and drooping as our English Sparrows do. No nests and eggs of this species were satis-

factorily identified. The breeding season on Charles seemed to be in March, birds being noticeably scarcer then.

The condition of the reproductive organs was noted as follows:

November 6; south Indefatigable; not much enlargement.

November 21; South Seymour; showed some enlargement.

December 19; south James; the few taken showed no enlargement of the organs of reproduction, while two males taken on Jervis the day before had very large testes.

May 14, 15; Charles; organs reduced in size.

On January 12 two young, about a week from the nest, were taken near Academy Bay, Indefatigable. The following day two more of about the same age were taken. On January 18 I obtained two in the same locality; they were but shortly from the nest. One of the young-of-the-year was taken on March 12 in the brush near the coast about 10 miles west of Villamil, Albemarle. Three days later, in the vicinity of Cape Rose, on the same island, several were seen close to the sea. In latter May, at Black Beach Roads, Charles, considerable numbers of this species were seen, but few were adult.

That individuals of this species also leave the land at times is testified by the fact that on the morning of May 18, when about 20 miles south of Indefatigable, an immature one came aboard. A *Dendroica petechia* also visited us.

This species was never noted bathing. It seems to have little or no competition as regards food. It is about as tame as the other finches. None was noted with diseased feet. Mr. Beck took a partial albino at Black Beach Roads, Charles, on June 4. It had several white primaries and rectrices and a number of white patches on its body. During our sojourn on Jervis on December 18 most of the birds seen were black males.

## 26. *Geospiza septentrionalis*: NORTHERN CACTUS FINCH

Culpepper and Wenman islands.

These birds were abundant and very bold on both islands. On the former they were taken on the landslide on the north side, this being the only accessible portion of the island, which is practically an elevated table land with precipices on all sides.



Wenman is also very rugged and steep, but can be pretty well explored. The following observations were made entirely on that island, which was visited on September 24. Culpepper was visited the following day.

When we landed, a dozen of these interesting little birds and a pair of mockingbirds were peering over a ledge at us within a couple of feet of our heads, exhibiting great curiosity.

A number of nests of the usual *Geospiza* type were seen in the bushes, but no eggs or nestlings were found. Several birds were heard singing and one was observed carrying a bit of grass in its bill. Three males I skinned had very large testes. I shot four young which had been out of the nest but a few days. Black individuals were not common.

Whenever I shot a bird several others would gather about it and pick at the blood. I saw some feeding on cactus, some on leaves, like the Sooty Ground Finches, but the great majority were feeding on the ground, where they scratch and dig quite vigorously.

This species was the most fearless and least suspicious of all of the finches of the archipelago, for, instead of leaving when one of their number was shot, they came about all the thicker to see what the trouble was.

So far as known there are no introduced or indigenous mammalia to bother them on either Wenman or Culpepper; nor are hawks known. The Galapagos Short-eared Owl, however, is reported from Culpepper.

#### 27. *Pinaroloxias inornata*: COCOS ISLAND FINCH

This species combines the habits of a ground-feeding finch with those of a tree-feeding warbler. It was found commonly in September, 1905, everywhere we went on Cocos Island, Costa Rica, being equally adapted to both cultivated ground and virgin forest. It made itself at home in and about the houses of the settlement at Wafer Bay.

Much of its food was obtained by hanging head downward from twigs and leaves. Some individuals which we caged on board the schooner lived on bird seed and bread. I saw one bathe in the drinking cup.

The only call heard was a sort of chirp, in spite of the fact that the nuptial season was on, as attested by the testes of all the adult males skinned. One day I saw an adult male fall to the ground from the branch of a bush. Upon approaching him he jumped up to a branch, where he hopped about with his wings spread and fluttering and his head and neck stretched forward, apparently indulging in a form of courtship, although I could not see the object of his affections.

House cats run wild seem to be the chief enemies that beset this and other species of Cocos birds.

Mr. Beck saw on two or three occasions nests which he thinks belonged to the Cocos Island Finch. These were well out on slender limbs 20 or 30 feet above the ground. They were similar to *Geospiza* nests in shape and construction, though of finer material. In one there were three broken eggs, red-spotted and about the size of the eggs of the smallest form of *Geospiza fuliginosa*.

#### 28. *Platyspiza crassirostris*: DARWIN'S TREE FINCH

Abingdon, Albemarle, Bindloe, Charles, Chatham, Duncan, Indefatigable, James, Jervis, and Narborough islands.

Darwin's Tree Finch was fairly common on the 10 islands named above, being found chiefly in the moist and upper dry regions, and in sandy coastal localities, where the "poison-fruit trees" (*Hippomane mancinella*) grow. It was not found in flocks as were the ground finches. In November, on south Indefatigable, it was found in the humid belt up to an elevation of 700 feet. In January one was seen at 1000 feet. In the region back of Black Beach Roads, Charles, in February and March, it was seen only above 1000 feet elevation. On southeast Albemarle it was encountered in August in the grassy treeless region above the village of Santo Tomas. None was seen in the dense thicket of brake ferns that crowns the summit of Abingdon, but below, in the humid belt, they were not uncommon. They were found in the vegetation about most springs and water holes, both in the interior and on the coast. However, none was observed at the water hole south of Tagus Cove, Albemarle, which was in the bare rock at the edge of the ocean.

Like the other tree finches, they live in the trees and bushes most of the time. There their strong legs and toes stand them in good stead in making long reaches for berries and in hanging head downwards. The only flights they make are from tree to tree. None of the tree finches were met with at sea as were occasional ground finches.

Their food, judging from observations in life, seems to consist of vegetable matter, while the other tree finches often eat insects. An examination of the stomachs of this species may prove that it is also an insect feeder. It feeds in the trees and bushes as do the other species, but usually eats berries, blossoms, green leaves, etc. On James, in December, several were seen feeding in a tree with red flowers (*Erythrina velutina*) in company with Pallid and Black-headed Tree Finches and some small black ground finches. Early in January, in the same region, I saw a dozen or more in one tree at about the same altitude, 1500 feet. In March they were seen feeding on the blossoms of bushes, occasionally hanging head downwards. In the coastal region west of Villamil, Albemarle, in April, a good many were seen in the "poison-fruit trees" growing about the fresh water holes and salt lagoons. On May 29 several were noted feeding on green tropical plums on the trees on Charles, in company with the Black-headed and Small-billed Tree Finches and the Sooty and Sturdy Ground Finches. In July a few were observed feeding on the blossoms of the sisal hemp on Chatham. On Abingdon, in September, they were feeding chiefly on green leaves, biting off small pieces here and there, although one was noted picking some very small berries from a shrub.

On one or two days when these birds were not seen their presence was made known by their song, which is like that of the Red-winged Blackbird (*Agelaius phoeniceus*). This song was heard on Indefatigable in January; on Chatham in January, February, and September; on Charles in February; on south Albemarle in March; and on Banks Bay Mountain, Albemarle, in April. On south Albemarle in April none were heard. In most cases where the songsters were seen they were black-headed males. On south Abingdon, in September, birds (many not black-headed) were singing a short song

while feeding. It could not be heard at any distance, being a *tweet* and then a prolonged *twür*.

Birds with large sexual organs were noted on November 3 at Villamil, Albemarle; on February 8 at Basso Point, Chatham; and on March 13, ten miles west of Villamil, Albemarle. Specimens taken on Charles on May 14 and 15 had sexual organs much reduced in size.

Nests and eggs were found as follows:

Mr. Beck took a nest, containing four eggs incubated four days, on February 23, in the Wreck Bay region, Chatham. The female was flushed from the nest which was of the domed form common to all Galapagos finches. It had a large entrance and was composed of dry grass, weed stems, and orchilla moss. The depression in which the eggs were laid was only slight.

Mr. Beck took a second nest of this species on the same day and in the same locality. It contained four eggs incubated three days. The nest was 18 feet from the ground in a tree, and was composed of small twigs, grass, and weed stems, and a large amount of orchilla moss.

Above 1900 feet elevation on Banks Bay Mountain, Albemarle, April 14, this species was the only finch seen. At 1900 feet I took a nest from the crotch of a croton bush. It was about 10 feet from the ground and contained three fresh eggs. It was large and made of grass, lined with fine grass. The parents stayed very close, making a clicking noise.

A young bird fresh from the nest was taken on March 15, on the edge of a mangrove swamp near Cape Rose, Albemarle. Many of the birds seen on Banks Bay Mountain on April 14 were young birds.

This species did not associate regularly with other species. The cases observed appeared to be accidental. As it seemed to live on vegetable matter, it did not appear as though it had much competition with other species, the food supply being unlimited.

These tree finches were quite tame, although not as tame as were the flycatchers. In one case one was very inquisitive, flying to within a couple of feet of my face, and acting somewhat like a Galapagos Flycatcher. At another time one alighted in a tree above me, then flew down within two feet of me to make a critical examination, singing all the time.

This species, along with other passerine birds on Chatham, had diseased feet, the disease manifesting itself by large rounded swellings on toes, tarsi, and at the junction of the tarsi and the tibiae. Birds in the vicinity of Basso Point, as well as those at Wreck Bay, were affected.

Black-headed males were not uncommon, except on Chatham, where only one was taken, and that in January. This case is nearly parallel to that of the Black-headed Tree Finch on that island.

#### 29. *Camarhynchus psittaculus*: PARROT TREE FINCH

Barrington, Charles, Chatham, Duncan, Indefatigable, James, and Jervis islands.

The Parrot Tree Finch was apparently one of the rarest of the finches of the Galapagos Islands, being found very sparingly on the above islands, chiefly on Indefatigable and James.

They were found in the arid regions of all the islands mentioned except Chatham, and also in the humid regions of Charles, Indefatigable, and James. One was taken in the north crater of Duncan at an elevation of 450 feet. On the same day, August 15, 1906, three others were taken on a ridge at about 1000 feet altitude on the south side of the island. One was seen in the arid region of northeast James, as well as in that back of James Bay.

Like the other finches of the genus they lived up to their name of tree finch, being observed with one exception to feed in the trees and bushes, often hanging head downwards in the search of some dainty morsel. Never more than one or two were seen at a time, nor were they ever seen in company with other species. One was seen at about 375 feet elevation on south Indefatigable, feeding on heliotrope blossoms, when suddenly a mockingbird swooped at it and drove it away. The exception to the rule of feeding in trees and bushes was noted in the upper part of the arid region inland from Academy Bay, Indefatigable. There a bird was seen beside a fallen, rotten log, scratching the dirt away very vigorously.

Four or five were seen in July, about the freshwater hole at the beach at Academy Bay. Although rare, these birds were always very tame like the other finches.



Three black-headed males were taken in the humid zone of James on December 22 and one on Jervis on the preceding day. With the Jervis male was also taken a female. Birds taken on James in early January showed enlargement of the sexual organs. Mr. Beck took a large-billed, black-headed male at Academy Bay, Indefatigable, on July 17.

### 30. *Camarhynchus habeli*: HABEL'S TREE FINCH

Abingdon and Bindloe islands.

This species was found equally as common on Bindloe as on Abingdon. We visited both of these islands in September.

Nineteen were taken on northwest Bindloe on the seventeenth. The following morning Mr. Beck spent an hour ashore and secured six. They were all taken in the arid region, as there is really no humid belt on this island.

On the south side of Abingdon they were found in both the arid and humid regions. One was taken just below the dense growth of ferns capping the summit of the island, which was enveloped in fog during the five days of our stay.

Like the other tree finches, this species feeds in the trees and bushes, being seen in the dry brush in the arid region.

On September 21 Mr. Hunter took a female with an egg almost ready to be laid. On the same day I took about 10 young birds. Of the 25 specimens taken on Bindloe, six were black-headed. I noticed but one black-headed one on Abingdon.

This species proved as tame as the majority of finches of the islands.

It fed singly and not in flocks as did the majority of the ground finches.

### 31. *Camarhynchus affinis*: ALLIED TREE FINCH

*Geospiza incerta*, Rothschild & Hartert, Nov. Zool., v. 6, p. 168; v. 9, p. 401;  
Snodgrass & Heller, Proc. Wash. Acad. Sci., v. 5, p. 289.

Albemarle, Duncan, James, and Narborough islands.

The Allied Tree Finch was not found commonly on any of the above islands except at Iguana Cove, Albemarle, where 27 were taken in the humid region on March 19 and 20. We

did not meet with it on Narborough. On James two were taken and on Duncan one.

The one shot on Duncan on August 15, was found on the floor of the north crater, the elevation of which is about 450 feet. The floor is paved with reddish earth, which supports a rather scanty growth of bushes and shrubs, and is strictly in the arid belt.

The two taken on James, December 28, were found in the humid or semi-humid region.

Albemarle was the stronghold of this species, it being found on all of the five great mountains. On southeast Albemarle the first specimen was taken in the humid region below Santo Tomas in March. Later in the year, August 27-30, one or two were seen in the once-cleared fields just below the village. On the 15th of March, in the arid region three or four miles west of Cape Rose, Mr. Beck saw one and on April 26, in the dry coastal region a few miles west of Villamil, an example was secured.

Only one was seen on Tagus Cove Mountain, Albemarle, and that was in latter March, the bird being observed in a large thick-foliaged tree at 1500 feet elevation on the west side of the mountain.

Three or four were taken on the east side of Cowley Mountain, Albemarle, above 1200 and below 2500 feet elevation in the middle of August.

Several immature ones were shot at the western base of Banks Bay Mountain, Albemarle, in the middle of April, and one adult was also taken at about 1500 feet elevation.

They move about in the same manner that the Black-headed Tree Finch does, flying from tree to tree and bush to bush in search of food, which they hunt singly, a trait apparently constant with but few exceptions to all the tree finches. One bird seen feeding on a tree on Cowley Mountain had several chrysalides of a small species of moth in its gullet.

A few birds were in song at Iguana Cove on March 19 and 20.

Only one black-headed bird was taken and that was on Cowley Mountain on August 10 and 11. A bird having a slight tendency toward a black head was taken at Iguana Cove in March. One-third of the birds taken there on March 19 and

20 were young ones, some in striped plumage. The adults had only medium-sized reproductive organs at that time.

32. *Camarhynchus pauper*: SMALL-BILLED TREE FINCH

Charles Island.

With the exception of three birds taken in the arid region in the vicinity of Cormorant Bay, two in October, one in May, and two taken near the beach at Black Beach Roads, on May 26, all of the specimens were seen above 1000 feet elevation in the country tapped by the old wagon road back of Black Beach Roads. It was not a common bird compared to the Sooty Ground Finch or the Sturdy Ground Finch. About 100 specimens were taken, nearly all from the interior basin of the island, only one or two being taken below the divide on the western slope. The interior region of Charles is in the humid belt, possessing two perpetual springs, the great rendezvous of the small land birds. The greater part of this region is overrun by lemon and orange trees, although here and there are patches of strictly native vegetation, in which are seen small *Scalesia*.

Like all of the Tree Finches, this species is very agile in getting about trees and bushes after food, and like others of the genus, often hangs head downwards. We found that they feed almost entirely in the orange trees, which are introduced, eating the pulp of the fruit. They were shot with their gullets full of it. One or two I took in *Scalesia* trees. Near the shore at Black Beach Roads, two were seen feeding in thorn bushes and hanging head downwards at times. One was seen in a tropical plum tree. On June 1, on the west slope of the island, one was seen eating the red berries of a *Bursera* tree, and at still another time one was noted feeding in some mistletoe growing on a *Scalesia*. One individual was seen feeding in a small shrub by the roadside and another on an orange on the ground.

Their song is very distinctive, being readily distinguished from that of the Black-headed Tree Finch, as well as from those of the other finches. In early March they were heard singing, while in latter May all song had ceased. They usually fed singly and in company with no other species. Cats and rats are probably their only introduced natural enemies.

**33. *Camarhynchus prothemelas*: BLACK-HEADED TREE FINCH**

Abingdon, Albemarle, Barrington, Champion, Charles, Chatham, Cowley, Duncan, Gardner-near-Charles, Indefatigable, James, Jervis, Narborough, Seymour, and Wenman islands.

This, the smallest of the tree finches, has its strongholds on Albemarle, Charles, Chatham, Indefatigable, and James. On the other islands it was not found to be common. It was not seen in flocks as were the ground finches. Abingdon and Wenman are islands from which it has not been previously reported. Whether the birds found there were rare residents or accidental visitants is an open question. No tree finch was encountered at sea. On south Abingdon on September 19, one was taken and two others were seen; on the following day another was taken. Four were taken on Wenman on September 24. Three or four other species, which were known only from islands to the southward, were also secured. On the west side of Tagus Cove Mountain, Albemarle, this species and the Sooty Ground Finch seemed to be the commonest finches.

They were found from the seashore to the mountain tops, in the arid region, in the region intermediate between the arid and the humid, in the forested humid region, and in the grassy region of the higher mountains. They were found in the arid regions of all the islands except Abingdon and Narborough. On the latter we saw none. They were found in the zone intermediate between the arid and the humid, and in the forested humid regions of all the islands named above that are of sufficient height to have such a region. On southeast Albemarle they were found about the scattered heliotrope bushes growing in the grassy, treeless country above Santo Tomas. They were found about the lagoons and shores of some of the larger islands. They were common about the spring in the interior of Charles in October. This spring was the great rendezvous of finches and doves in the dry season. On south Indefatigable in January, they were seen up to about 700 feet elevation.

Their numbers, of course, varied from day to day, but they were found in most cases to be commonest in the transition and humid regions, rather than in the arid. Two were taken in the mangroves on south Indefatigable and one was also seen feeding on the ocean beach proper. They were even seen on the

extremely barren and sterile coast of northeast Indefatigable, where vegetation is very sparse and the mountains are miles away. On the east side of Cowley Mountain, Albemarle, they were found only above 1200 feet in the arid region; only three or four were seen.

Like all of the other species of tree finches this little bird haunts the trees and bushes, feeding on seeds, leaves, buds, etc., often hanging head downwards in the quest. In December, in a canyon in the arid region just back of the lagoons at James Bay, James, I saw two eating the green leaves of a thorny tree. Occasionally on other islands they were seen eating leaves of trees and bushes. On the mountain above Iguana Cove, Albemarle, in March, they were observed tearing bits of bark from trees, mostly *Compositæ*, with their bills, apparently searching for food. One was seen feeding on a cactus on Charles. On Chatham, in July, individuals were seen twisting little pieces of bark off of trees. A bird would take hold of a piece with its bill and then twist and pull. On Charles they were noted eating green tropical plums on the trees, as well as feeding in the *Scalesia* and lemon trees.

They were heard singing on Chatham in January and February, on southwest Albemarle and at Tagus Cove, Albemarle, in March, and at Banks Bay, Albemarle, in April. In May, on Charles none were heard singing.

The condition of the sexual organs were noted as follows:

November 3; Villamil, Albemarle; large.

January 25; Wreck Bay, Chatham; very large.

January 26; Wreck Bay, Chatham; one in worn plumage with large sexual organs.

January 29; Wreck Bay, Chatham; large.

February 8; Basso Point, Chatham; large.

February 23; Wreck Bay, Chatham; large.

March 13; south Albemarle; large.

March 15; south Albemarle; large.

March 19 and 20; Iguana Cove, Albemarle; medium-sized.

May 14 and 15; Black Beach Roads, Charles; small.

The nests were about the size of those of the Sooty Ground Finch, and like those of all Galapagos finches, were domed, with entrances on the sides. This species also nested in the wet season as may be seen by the dates given below. About the middle of January, at Academy Bay, Indefatigable, I saw



a male building a nest of moss about 20 feet above the ground in the crotch of a *Scalesia* tree in the humid region. On Chatham in latter January, I saw one carrying cotton for a nest. At this time it rained a great deal, the wagon road being like a river on the slopes of the hills, and ponds being abundant. In early February, at Basso Point, on the same island, I saw one carrying straw crosswise in its beak. About a quarter of a mile inland from Black Beach Roads, Charles, at an elevation of 150 feet, two pair were found nesting, both in *Bursera* trees. One nest, which was just being built, was composed chiefly of lichen; the other was of dried grass and contained one fresh egg. The males in these two cases were not black-headed. On south Albemarle on March 12, a bird was seen gathering cotton in its beak.

The nests were usually well-made and composed of grass blades and grass stems, orchilla moss or lichen, and cotton balls. Cotton balls and soft dry grass were usually used as a lining. The nests were found in trees and bushes (*Bursera*, *Scalesia*, lemon, thorn bushes) all the way from five feet to 20 feet from the ground, the majority being found at about 12 feet, sometimes in a crotch and at other times out towards the end of a limb.

Eggs were found as follows:

- January 27; Wreck Bay, Chatham; three fresh.
- January 29; Wreck Bay, Chatham; three fresh.
- February 8; Basso Point, Chatham; one fresh.
- February 8; Basso Point, Chatham; one fresh.
- February 13; Isthmus of Chatham; three incubated five days.
- March 1; Black Beach Roads, Charles; one fresh.
- March 2; Black Beach Roads, Charles; two fresh.
- March 2; Black Beach Roads, Charles; three, incubated six days.
- March 2; Black Beach Roads, Charles, four fresh.

Three partly fledged young were taken from a nest at an altitude of about 750 feet in the Wreck Bay region, Chatham, on February 23. The nest was about 15 feet from the ground in the top of a small *Scalesia* tree; it was domed, about five inches in diameter, and made of grass. The parents flew excitedly back and forth in front of me, while I was examining the nest. On the 28th of February, another nest containing three slightly-fledged young was found about 20 feet above the ground in the top of a *Scalesia* tree.

On May 16, about a quarter of a mile inland from Black Beach Roads, Charles, I saw a black-headed male feeding a young one. On the 24th another black-headed male was seen feeding a young one sitting on a stick about a foot from the ground.

All of the other tree finches and some of the ground finches, also the warblers, might be considered as competitors, but the food supply is apparently abundant. As a rule the Black-headed Tree Finches fed alone. Once in the arid region of southeast Indefatigable I saw a Black-headed Tree Finch feeding on a bush in company with two Sooty Ground Finches. At another time on Charles they were seen feeding in tropical plum trees with Darwin's Tree Finch, Small-billed Tree Finch, Sooty Ground Finch, and Sturdy Ground Finch. None of these finches are very tenacious of life.

On Chatham, this species, like the majority of the passerine species with the exception of the flycatchers, was afflicted with diseased feet, these often having large rough swellings on them. Specimens from Basso Point were diseased as well as those from Wreck Bay. On Chatham, Charles, and Albemarle, the natural enemies of this species, aside from those indigenous to the islands, are cats, and to a much less degree, rats.

#### 34. *Camarhynchus pallidus*: PALLID TREE FINCH

*Geospiza heliobates*, Snodgrass & Heller, Proc. Wash. Acad. Sci., v. 5, pp. 279-284; Rothschild & Hartert, Nov. Zool., v. 9, p. 400.

Albemarle, Charles, Chatham, Duncan, Indefatigable, James, Jervis, Narborough, and Seymour islands.

This tree finch occurs fairly commonly on all parts of Albemarle, Indefatigable, and James, and sparingly on the other islands. One was taken inland from Black Beach Roads, Charles, on October 11, 1905. One was taken on Duncan in December, 1905, and several in August, 1906. Those taken in August were found as follows: one on northeast side of island, one on ridge on south side at 1000 feet elevation, and five on the floor of the north crater, which is about 450 feet above sea level and consists of reddish earth scantily clothed with vegetation and surrounded by rocky walls 300 or 400 feet in height.

Two or three were taken on Jervis in December, 1905. On Chatham, in the Wreck Bay region, five were taken in latter January, 1906, a young one just from the nest on February 23, 1906, and two on September 10, 1906. In April, 1906, Mr. Beck reported seeing them in the humid region high up on the south side of Narborough. On July 26, 1906, one was taken in a small tree near the beach at the anchorage on the western side of South Seymour Island.

This species was found from the ocean shore through the various life zones to the grassy humid belt of the higher mountains. On Albemarle, Duncan, Indefatigable, James, Jervis, and Seymour they were seen in the arid region. On Charles the only specimen taken was shot in the interior humid region. On Chatham they were taken in the humid zone just below the sugar plantations and in the region intermediate between the humid and the arid.

During our stay on the southeast side of Indefatigable, opposite Barrington, in October, two were taken, one about three miles inland in the arid region, the other in some green shrubbery growing along the beach. While at Academy Bay in November, a few were seen up to 525 feet elevation, one being observed in the brush in the arid region at about 100 feet elevation, a few in the region where the arid and humid zones meet, and a few in the humid zone. During our stay there in the middle of January, two or three were seen on the 12th in the moist region, while on the 17th one was noted at about 1000 feet elevation, high in the moist region. On the 20th one was observed at a water hole near the beach. On July 11 and 12, two were taken close to the same water hole, while on the 17th Mr. Beck took one a short distance inland in the arid region. On northwest Indefatigable, opposite Duncan, one was shot in a tree near the beach on July 21.

On southeast Albemarle in March, August, and November, they were found in the "poison-fruit trees" (*Hippomane mancinella*) and mangroves bordering the lagoons near the ocean shore. They were also observed in the forested humid region below the plantation of Santo Tomas in the mountains. They were fairly common in the open, treeless country above Santo Tomas, occurring mostly in the scattered shrubs and bushes. Mr. Hunter shot more than 30 in one forenoon in

the latter part of August. On the 19th of March, 23 were taken on the mountain above Iguana Cove, Albemarle, where the humid zone comes down to the seashore. Most of the birds were taken at 200 or 300 feet elevation, however. On the 20th I saw only five or six. On March 26 a male was taken at 3000 feet elevation on the west side of Tagus Cove Mountain, Albemarle, where there is no true moist region. Cactus and other arid-region plants occur to within 100 feet of the summit (about 4000 feet), which, at the place we climbed, was crowned with tall, coarse grass, higher than our heads. On the 31st an individual was observed feeding in a large tree at 1500 feet elevation. None were seen in the mangrove swamps on the shores of Banks Bay, Albemarle. On the Banks Bay Mountain, however, an adult was taken at an altitude of 1900 feet on April 14, while one or two immature ones were seen at the base of the mountain. One or two individuals were also seen in a small flat valley between the main mountain and a small recent volcano near its base. On the east side of Cowley Mountain, Albemarle, a region of scanty vegetation and of pumice-stone soil, a dozen were taken on August 10 and 11, above 1200 feet elevation, which is well within the arid region.

In the arid region of James, on an island of vegetation cut off from the nearest plant life by several miles of fresh lava and cinders and bordered by the ocean on the south, one was taken on December 19. In the humid region behind James Bay, James, several were taken in latter December and early January. One was feeding on an *Erythrina* tree with red flowers, in company with Darwin's Tree Finch, Black-headed Tree Finch, and some small black ground finches, probably the Sooty Ground Finch. Two were taken on August 8, at the lower edge of the moist zone. On August 6 a striped individual was taken in the green bushes bordering the lagoon behind the beach at James Bay. On August 1, an individual was taken in the rough, arid region of northeast James, lying northwest of Sullivan Bay and Bartholomew Island.

These birds, in common with all of the tree finches, were never observed to take any extended flights, but were seen flying from bush to bush and tree to tree, where they seem to

find their food almost entirely. They were quite lively birds, jumping from limb to limb, and often hanging head downwards while searching for food.

In the humid region on south Indefatigable they were found to feed as a rule high up in the branches of the large *Scalesia* trees, which there grew to a height of 30 to 40 feet. One was seen in the humid region examining thoroughly a rotten tree trunk lying on the ground. On Chatham and southeast Albemarle they were also seen feeding head downwards in the trees in the moist zone. On southeast Albemarle they were frequently seen feeding in the mangroves, and chiefly in the "poison-fruit trees", in the coastal region. At 1900 feet altitude on Banks Bay Mountain, Albemarle, I saw an adult feeding in a tree of the family Compositæ. On Cowley Mountain, Albemarle, *Scalesia* trees appeared to be their favorite feeding places.

In the arid region 10 miles west of Villamil, Albemarle, I one day watched a bird feeding in a leafless, dead tree. It was apparently searching for insects, for it inspected every hole carefully. Finally it found one too deep for its bill. It then flew to a neighboring tree and broke off a small twig, about half an inch in length. Returning to the hole, the bird inserted the little stick as a probe, holding it lengthwise in its bill. It proceeded to examine other holes by the same method. Mr. Beck and Mr. King said they had noted similar instances elsewhere.

At Academy Bay, Indefatigable, one was taken while it was working over a rotten cactus limb. About Iguana Cove, Albemarle, they were feeding in the trees and bushes. On July 26, on South Seymour, one was noted picking the bark off a small tree, which grew near the beach, and eating small red eggs, probably spiders', which abounded beneath it.

They were heard singing in the "poison-fruit trees" near Villamil, Albemarle, on November 1. On March 12, in the mangroves about 10 miles to the westward of Villamil, several birds which had nests were singing. On March 19 and 20 some of the birds above Iguana Cove, Albemarle, were singing.

The condition of the reproductive organs was noted as follows:



November 1; Villamil, Albemarle; testes enlarged.

January 2-4; James Bay, James; two with enlarged sexual organs.

March 13; ten miles west of Villamil, Albemarle; large reproductive organs.

March 19 and 20; Iguana Cove, Albemarle; medium-sized reproductive organs.

A female, whose feathers showed signs of nesting, was taken on Chatham on January 29, but no nests were found. Nests were found as follows:

On March 10, in a clump of "poison-fruit trees" close to the lagoon and to the road leading inland from Villamil, Albemarle, two nests were found, one being new and unused, the other containing two partly-fledged young. Both nests were about 10 feet from the ground, quite spherical, and made of coarse grass, with the opening on the side, as is the case with all the known nests of Galapagos finches. The parents made no disturbance when their nests were examined. On March 12, ten miles to the westward of Villamil, two nests were found in a mangrove swamp. One was about 20 feet from the ground and was unoccupied, being built in the same manner as the one seen on the 10th at Villamil. The second one was near the top of a tree about 40 feet high, and was inaccessible. A bird was seen going in and out of it.

During our stay at Iguana Cove, Albemarle, in March one was noted carrying nesting material in its bill.

Young and immature birds were seen as follows:

March 12; south Albemarle; one immature male taken.

March 19; Iguana Cove, Albemarle; of the 23 specimens taken the majority were immature birds.

April 25; south Albemarle; mostly young birds in striped plumage; three adults.

Like all of the finches occurring in these islands this species proved quite tame. None of the finches, however, were as tame and fearless as the flycatchers and mockingbirds.

### 35. *Dolichonyx oryzivorus*: BOBOLINK

Charles, Chatham, and James islands.

On September 28, 1906, in latitude 7° 23' North, longitude 97° 48' West, a female came aboard during the forenoon. A

squally southwest wind prevailed at the time. The bird was shot, and on examination, the stomach was found to contain a small amount of brownish fluid.

The second bird, in yellow plumage, came aboard on October 3 in latitude  $14^{\circ} 24'$  North, longitude  $106^{\circ} 42'$  West, during a strong squally southwest blow accompanied by rain. This bird was not captured. It took flight from the stern of the vessel, and in doing so was caught in the downward draught from the mainsail and blown into the water, but recovered itself immediately and flew away.

August 2, 1905, in latitude  $12^{\circ} 2'$  North, longitude  $109^{\circ} 11'$  West, a female American Redstart (*Setophaga ruticilla*) alighted on the schooner in the evening and was taken. The weather was squally and rainy that day.

The three above positions range from about 300 to 500 miles from the nearest point on the Mexican or Central American mainland.

While sailing slowly southward about 75 miles west of northern Baja California on July 9, 1905, two Mourning Doves (*Zenaidura carolinensis*) alighted on the vessel in the morning and remained aboard all day. The sky was overcast and a gentle wind was blowing from the land.